

UNITED STATES NUCLEAR REGULATORY COMMISSION

Rules and Regulations



Title 10 - Chapter 1
CODE of FEDERAL REGULATIONS

Volume IV

**STATEMENTS OF CONSIDERATION
JANUARY 1, 1987 THROUGH DECEMBER 31, 1996
PARTS 50-199**

Division of Administrative Services

**UNITED STATES NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555**

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PREFACE

The Division of Administrative Services, Office of Administration, distributed a reissuance of the "basic book" of the NRC Rules and Regulations in June 1999. This edition of the NRC Rules and Regulations monthly supplement program contains all codified text of 10 CFR effective through March 1999, including the 40 supplements that comprised the publication as of February 26, 1999, plus the supplement for March 1999.

As part of this reissuance of the basic book that comprises the "loose-leaf" NRC Rules and Regulations, the Statements of Consideration for final rules published from January 1, 1987 thru December 31, 1996, were removed. This decision was made to reduce the unwieldy size off this monthly publication.

The Statements of Consideration for final rules in this bound, two-volume set (Volumes III and IV) are to be used as a permanent companion to the NRC Rules and Regulations. These volumes are not a complete historical set of NRC rulemaking preambles but merely replace those Statements of Consideration for final rules that were removed as part of the March 1999 compilation. The Statements of Consideration for final rules prior to January 1, 1987 are also available in a bound, two-volume set (Volumes I and II).

Volume I consists of the Statements of Consideration prior to January 1, 1987, for Parts 0-49 of 10 CFR.

Volume II consists of the Statements of Consideration prior to January 1, 1987, for Parts 50-199.

Volume III consists of the Statements of Consideration from January 1, 1987 through December 31, 1996, for Parts 0-49.

Volume IV consists of the Statements of Consideration from January 1, 1987 through December 31, 1996, for Parts 50-199.

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART 50

DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

STATEMENTS OF CONSIDERATION

52 FR 1292
Published 1/12/87
Effective 2/11/87

*Bankruptcy Filing; Notification
Requirements*

Part 30 Statements of Consideration

52 FR 1415
Published 1/13/87

10 CFR Part 50

Domestic Licensing of Production and
Utilization Facilities; Minor Corrective
Amendment

Correction

In rule document 86-29170 beginning
on page 47206 in the issue of
Wednesday, December 31, 1986, make
the following correction:

§ 50.54 [Corrected]

On page 47206, in § 50.54, in the third
column, the first paragraph designation
should be "(p)(1)".

52 FR 9453
Published 3/25/87
Effective 5/26/87

Operators' Licenses and Conforming
Amendments

See Part 55 Statements of Consideration

52 FR 16823
Published 5/6/87
Effective 5/6/87

10 CFR Part 50

Production and Utilization Facilities;
Timing Requirements for Full
Participation Emergency
Preparedness Exercises for Power
Reactors Prior to Receipt of an
Operating License

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory
Commission (NRC or Commission) is
amending its regulations to change the
timing requirements for a full
participation emergency preparedness
exercise for power reactors prior to
issuance of a full-power operating
license (one authorizing operation above
5% of rated power of the reactor). The
amendment requires a full participation
exercise, including State and local
governments, to be held within two
years before the issuance of a full-power
operating license, as opposed to the
current requirement of within one year.
An exercise which tests the licensee's
onsite emergency plan, but which need
not include State or local government
participation, is still required to be held
within one year before issuance of a
full-power operating license.

This rule change is unrelated to the
Commission's notice of proposed
rulemaking that would establish criteria
for the evaluation of emergency
planning for nuclear plants in those
situations in which a State or locality
has elected not to participate in the
emergency planning process.

EFFECTIVE DATE: This rule is effective on
May 6, 1987.

FOR FURTHER INFORMATION CONTACT:
Michael T. Jamgochian, Regulatory
Applications Branch, Office of Nuclear
Regulatory Research, U.S. Nuclear
Regulatory Commission, Washington,
DC 20555, Telephone (301) 443-7657.

SUPPLEMENTARY INFORMATION:

I. Background

This notice of final rulemaking will
change the timing requirements for a full
participation emergency preparedness
exercise for power reactors prior to
issuance of a full-power operating
license. It is unrelated to the
Commission's notice of proposed
rulemaking, published in the Federal

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Register on March 6, 1987 [52 FR 6980], that would establish criteria for the evaluation of emergency planning for nuclear plants in those situations in which a State locality has elected not to participate in the emergency planning process.

The Commission published the proposed timing-requirements rule for comment on December 2, 1986 (51 FR 43369). A notice extending the 30-day comment period was published in the Federal Register on January 7, 1987 [52 FR 543]. During the 40-day comment a total of 18 public comments were received. Nine supported the proposed rule and nine opposed it. As indicated below, the Commission has reviewed the comments and has decided to promulgate a final rule which includes a number of modifications from the one that had been proposed. The Federal Emergency Management Agency, by memorandum dated March 27, 1987, has advised the Commission of its concurrence in the final rule that is being issued here.

When the Commission decided to require a full-participation emergency planning exercise within one year prior to the licensing of a power plant, it based this scheduling decision on a balance between the desirability for an exercise close to the date of licensing in order to assess the adequacy of the emergency plan being tested and the countervailing need to avoid scheduling and resource burdens. Based on the Commission's experience since the original promulgation of the scheduling requirement the Commission now believes that it is appropriate to strike a new balance. The new rule strikes that balance by requiring a full-participation emergency planning exercise within two years prior to the licensing of a power plant, the same scheduling requirement mandated for full-participation emergency planning exercises after licensing.

Since the promulgation of its emergency planning requirements in 1980, both the Commission and the Federal Emergency Management Agency (FEMA) have gained much experience in assessing the results of, and the requirement for, full-participation exercises. Most of these exercises have been the post-licensing exercises that NRC and FEMA regulations now require to be held every two years. In setting the two-year requirement for operating plants in 1984, prior NRC and FEMA experience demonstrated that the reasonableness of emergency planning at a nuclear power plant can be fairly tested and adequately assured by a full-participation exercises which are held every two years rather than on a more frequent basis. 49 FR 27733, 27734-27735 (July 6, 1984). Similarly, the Commission

has concluded that no safety requirement mandates a full-participation exercise within one year prior to plant licensing. To the extent that an offsite pre-licensing exercise is intended to reveal whether an emergency plan has fundamental flaws, that purpose can be achieved at least as well by an exercise held within two years of licensing as within one year. To the extent that the exercise is designed to test the preparedness of those individuals and organizations that must participate in offsite emergency planning, NRC and FEMA experience with post-licensing exercises has convinced us that exercises every two years, including remedial exercises when necessary, perform this function satisfactorily. Exercises on a more frequent basis are not necessary to enable the Commission to determine whether an emergency plan provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR 50.47(a).

Moreover, since the Commission's promulgation of its original requirement for a full-participation exercise within one year of the licensing of a power plant it has also become clear that the resource and scheduling burdens created by this timing requirement have proven far more onerous than originally expected. First, with the United States Court of Appeals for the District of Columbia Circuit's decision in *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985), it has become necessary to permit litigation in contested proceedings over the results of pre-licensing exercises. This litigation occasionally has not been completed within the year following the exercise. See e.g., *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1). Such a delay makes it impossible to comply with the regulatory scheduling requirement and the dictates of *UCS v. NRC*. Even when the delays do not make compliance with both requirements impossible, they unnecessarily complicate both the licensing proceeding and the scheduling of the required pre-licensing exercise. Second, utilities are finding it difficult to predict the actual date when their plants will be receiving an operating license. Thus, experience is proving that it is often difficult to know precisely when the pre-licensing exercise should be scheduled to comply with the one-year requirement.

Certainly, an important indicator of this difficulty is the fact that in the last two years six plants that have been awarded operating licenses have sought and received exemptions from the scheduling requirements of the pre-licensing exercise rule. See 52 FR 713

(January 8, 1987) (Shearon Harris Nuclear Power Plant: eight-month extension); 51 FR 41035 (November 12, 1986) (Perry Nuclear Power Plant, Unit 1; eleven-month extension); 50 FR 32129 (August 8, 1985) (Limerick Generating Station, Unit 1; two-week extension); *id.* 28485 (July 12, 1986) (Enrico Fermi Atomic Power Plant, Unit 2; three-week extension); *id.* 9917 (March 12, 1985) (Waterford Steam Electric Station, Unit 3; five-week extension); *id.* 5829 (February 12, 1985) (Byron Station, Unit 1; three-month extension). The frequency and circumstances surrounding these exemptions support the Commission's conclusion that the one-year scheduling requirement has proven difficult to meet and that an emergency exercise conducted more than one year before plant full-power licensing is adequate to assess the propriety of an emergency plan.

As a result of the Commission's experience with the one-year pre-licensing exercise requirements and FEMA and NRC experience with the two-year post-licensing exercise requirements, which provides for remedial exercise when necessary, the Commission has determined that its previous pre-licensing requirement for a full-participation exercise within one year of the licensing of a power plant is not necessary. The benefits of a pre-licensing exercise requirement can be fully achieved by allowing that requirement to be met within two years of the licensing of a power plant. This approach also should reduce the unnecessary scheduling and resource burdens that have become evident to the Commission based upon its experience with the one-year requirement.

II. Summary of Public Comments and Commission Responses

1. Commonwealth Edison

Summary of Comment.

Commonwealth Edison supported that portion of the proposed rule extending from one to two years the period within which the pre-operational offsite exercise must be held. However, Edison disagreed with the last two sentences of the proposed rule which require the applicant to conduct an exercise of its onsite plan if the offsite exercise is more than one year prior to issuance of the operating license. Edison argued that the additional test would be of marginal value and might tend to introduce additional issues into the operating license hearing. On this basis Edison recommended deletion of the last two sentences of the proposed rule.

Commission Response. The Commission disagrees that a pre-operational onsite exercise within one year before issuance of a full-power operating license is of marginal value.

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The importance of annual onsite emergency planning exercises by the licensee's operational staff has already been recognized in the Commission's regulations, which now require that after a facility is licensed to operate there must be an annual onsite exercise. This annual emergency response function drill ensures that the licensee's new personnel are adequately and promptly trained and that existing licensee personnel maintain their emergency response capability. The existing requirement of a pre-operational onsite exercise within one year prior to full-power license issuance is consistent with this philosophy as well as the Commission's general desire to have pre-operational emergency planning exercises as close as practicable to the time of licensing. And since, unlike the situation with offsite exercises, no one has identified any existing response or timing difficulty with the onsite requirement, we find no reason to revise the requirement at this time.

Moreover, to mandate an onsite exercise within one year of operation while requiring an offsite exercise within two years is a recognition of the distinct nature of the participants involved in each instance. The State and local emergency planning organizations that are primarily involved in offsite emergency planning are in almost all instances organized and trained to deal with emergency situations long before facility operation. While the offsite emergency test is important to judge the ability of these existing organizations to respond to the particular of a radiological emergency, in light of their ongoing responsibility for all types of emergencies a demonstration of offsite preparedness by such agencies within two years prior to licensing affords reasonable assurance of their capabilities at the time of licensing. In contrast, as an applicant makes a full-scale shift from a facility construction to a facility operation mode within the last twelve to eighteen months prior to operation, as a general rule many new operational personnel are retained who must be ready to carry out the utility's onsite emergency response responsibilities. It is also in recognition of this distinction that the Commission finds that an onsite exercise should be required within one year of licensing to provide assurance that the applicant's onsite response capabilities are adequate.

For the purposes of clarity, the Commission is revising the last two sentences, which provide that a pre-operational onsite exercise be held within one year before operation above 5% of rated power.

2. Edison Electric Institute

Summary of Comment. The Edison Electric Institute supported the proposed rule and did not suggest any changes to its text or rationale.

Commission Response. None required.

3. Hunion and Williams

Summary of Comment. This law firm filed comments on behalf of Long Island Lighting Company (LILCO). LILCO stated that it supported the amendment and agreed with the Commission's basic premise that the two-year interval was adequate to ensure an acceptable level of emergency preparedness. LILCO cited its experience with the Shoreham facility as supporting the need for the amendment, and disagreed with Commissioner Asselstine's view that the exemption process was the appropriate means to address the problem. LILCO did not offer any suggestions for changes in the proposed rule.

Commission Response. None required.

4. Marvin Lewis

Summary of Comment. Mr. Lewis opposed the proposed rule, stating that it would "weaken regulation and pose a danger to the health and safety of the public by allowing unlicensed operators more freedom to act with nuclear hazards before having proven that they can act responsibly."

Commission Response. Licensees are not being granted any additional "freedom" by this rule. The full participation exercise must still be held prior to full-power operation of the facility and a pre-operational onsite exercise will continue to be required one year prior to full-power operation. The only change is the timing of the full participation exercise.

5. Atomic Industrial Forum

The Atomic Industrial Forum (AIF) supported the proposed rule but pointed out, with respect to its last two sentences, that Section IV.F.2 of Appendix E already requires a licensee to conduct annual exercises of its emergency plan. AIF suggested that this was a redundant requirement and therefore the last two sentences of the proposed rule should be deleted.

Commission Response. The Commission disagrees that the last two sentences of the proposed rule should be deleted, but has determined to revise those sentences for purposes of clarity. (Also, in the interests of clarity, the preceding sentence is modified to specify that an operating license "for full power" is to be taken, in this context, to be "one authorizing operation above 5% of rated power." The prior reference to 5% of rated power was ambiguous.)

6. Stone & Webster Engineering Corporation

Summary of Comment. Stone & Webster supported the proposed rule and did not suggest any changes.

Commission Response. None required.

7. Seacoast Anti-Pollution League

Summary of Comment. The Seacoast Anti-pollution League (SAPL) opposed the amendment and agreed with the views of Commissioner Asselstine. SAPL argued that emergency response personnel experience fairly rapid turnover, and therefore "a full scale exercise is needed annually." SAPL did not accept the Commission's reliance on the fact that State and local governments are often called upon to respond to a variety of non-nuclear emergencies.

Commission Response. The Commission does not agree that two years between full participation exercises is unwarranted based on personnel changes. The Commission's and FEMA's rules have, since 1984, permitted the two-year cycle for full participation exercises for operating plants. The Commission's view was in 1984, and is today, that there are more beneficial uses of State and local governments' resources, such as providing for additional training and equipment, than using such resources to support an annual full participation exercise.

The Commission does not rely solely on the fact that State and local governments routinely respond to a variety of public emergencies. However, the basic principles involved in handling non-nuclear emergencies, such as evacuations due to an impending hurricane or a leak of toxic chemicals, also apply in responding to a nuclear accident. This lends support to the rule because State and local emergency response organizations are frequently called upon and must maintain a high degree of readiness independent of nuclear power plant exercises.

8. Liz Cullington

Summary of Comment. Ms. Cullington opposed the proposed rule and stated as follows:

In extending the time period from one year to two, the NRC would be essentially handing to the utilities an across-the-board offer of total exemption from the requirement to prepare emergency response plans for reactors under licensing review, as long as an acceptable number of sheets of paper are submitted to the Commission with appropriate title pages. Under this proposed rule change, a utility could submit a xeroxed copy of Webster's Dictionary as its emergency response plan, and have no deadline for completing the plan itself, as a reality, for either exercising it, or demonstrating that it is feasible.

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Commission Response. The proposed rule change is more limited in scope than the comment suggests. It does not affect either the required content of emergency plans nor the need to exercise such plans on a regular basis. The amendment only extends from one to two years the period within which the preoperational full-participation exercise must be held. All other Appendix E and 10 CFR 50.47 requirements must continue to be met as a prerequisite for issuance of an operating license, including the requirement that a pre-operational onsite exercise be held within one year before going above 5 percent of rated power.

9. Georgia Power Company

Summary of Comment. The Georgia Power Company supported the proposed rule and did not suggest changes in its text.

Commission Response. None required.

10. Nuclear Information and Research Service

Summary of Comment. The Nuclear Information and Research Service (NIRS) opposed the amendment, and stated three reasons for doing so:

1. Changes [in emergency procedures] will be more likely to occur in a new plant where last minute alterations in technical specifications, guidelines, newly trained operators, and actual equipment are common occurrences. It is precisely this kind of change which marks a new plant from an operating plant and which necessitates an exercise no more than one year prior to licensing.

2. An exercise no more than one year prior to licensing "would ensure that any new government officials or workers are familiar with the plans themselves, and are capable of carrying them out."

3. The one-year requirement has been easily satisfied in most cases, and a schedule exemption is an available option where needed.

Commission Response. Changes of the type cited by NIRS do occur prior to issuance of an operating license and throughout the life of an emergency plan. However, these changes would be addressed in the utility's emergency plan. The proposed rule retains the requirement that a pre-operational onsite exercise be held within one year before going above 5 percent of rated power.

When changes in offsite emergency procedures or offsite personnel occur, it is the responsibility of the State or local government to ensure that personnel are adequately trained to carry out their functions under the plan. The licensee is required by Commission regulations to assist in such training. See 10 CFR Part 50 Appendix E, Section F (introductory paragraph). The proposed rule would

permit the use of a two-year cycle for the holding of a pre-operational offsite exercise. This timing would be consistent with the two-year cycle for the holding of a post-operational offsite exercise for operating plants which has been in effect since 1984.

Sound principles of administrative law dictate that where agency policy is no longer correctly reflected in its rules, rulemaking should be undertaken and public comment sought. The Commission now believes that a two-year period between full participation exercises should be used in all cases, and therefore has proceeded with rulemaking to codify this policy.

11. Union of Concerned Scientists/New England Coalition on Nuclear Pollution

Summary of Comment. The Union of Concerned Scientists (UCS) and the New England Coalition on Nuclear Pollution (NECNP) oppose the rule on the following grounds:

1. The Commission has not adequately explained its reasons for making a change in policy.

2. The proposed rule ignores a distinction previously drawn between pre- and post-operational exercises.

3. The Commission should have prepared a backfit analysis for the proposed rule.

Commission Response. The logic for the proposed rule was stated in the notice of proposed rulemaking (51 FR 43369, December 2, 1986), as follows:

The Commission in 1984 revised its emergency preparedness regulations to relax the frequency of full participation exercises by State and local governments for sites with an operating license. This was done in part because the Federal Emergency Management Agency (FEMA), based on its experience in observing and evaluating exercises, adopted a biennial, rather than an annual, requirement for full participation exercises. Under the biennial requirement adopted by the Commission, State and local governments need only participate in one full participation exercise, at any site, every two years. The Commission revised this regulation because it found that annual exercises used a disproportionate amount of Federal, State, and local government resources, and that State and local governments frequently exercised their emergency preparedness capabilities by responding to a variety of natural and man-made emergencies, such as chemical spills, on a continuing basis. The Commission concluded that biennial full participation exercises were adequate to protect public health and safety. The Commission in revising its regulations for full participation exercises retained the requirement for annual exercises of each licensee's emergency plan (49 FR 27733, July 6, 1984).

The Commission did not make a similar change regarding the required frequency of full participation exercises at sites without an operating license. Because of the opportunity

in an operating license proceeding under Section 189e of the Atomic Energy Act for a hearing on the results of a full participation exercise, this requirement created some difficulty in scheduling the exercise so that it would allow time for a hearing while still being conducted within one year of plant readiness to be licensed. In 1982 the Commission adopted a rule which, by finding that emergency preparedness exercises were not required for a Licensing Board, Appeal Board, or Commission decision, would have allowed the exercise to be conducted close enough to a licensing decision to avoid this difficulty and to avoid annual pre-licensing exercises (47 FR 30232, July 13, 1982). However, the Court of Appeals for the District of Columbia Circuit vacated that rulemaking. The court held that the Commission could not remove from the hearing requirements of Section 189a of the Atomic Energy Act a material issue relevant to its licensing decision, and that the prelicensing exercise was such a material issue. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), cert. denied, 105 S.Ct. 815 (1985).

The Commission has thus been left with a regulatory scheme for frequency of full participation emergency preparedness exercises that treats sites with an operating license differently than sites without an operating license. The Commission does not believe this disparity in treatment is warranted. The Commission is concerned about the burden the present rule may place on State and local governments. The requirement that those governments participate in a full participation exercise every two years is in addition to the requirement for their participation at sites without an operating license. Requiring annual participation at sites without operating licenses could thus place a significant burden on State and local government resources.

The Commission in the prior rulemaking determined that emergency preparedness would be adequate if State and local governments participated in an exercise every two years. There seems to be little reason why State and local governments nonetheless should have to participate in full participation exercises on an annual basis in the pre-licensing stage solely because a license did not issue within 365 days of the exercise. The only requirement should be that the participants be adequately in place and trained to make the exercise meaningful. This could well occur two years before issuance of an operating license. If the exercise demonstrates that preparedness was inadequate, then remedial steps, including another exercise, if appropriate, can be taken. Moreover in accord with the Commission's regulations for sites with operating licenses, applicants will still have to conduct annual exercises, i.e., if the full participation exercise is held more than one year before issuance of the operating license, then the applicant must conduct an exercise of its emergency plan before license issuance. However, that latter exercise need not involve State or local governments.

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UCS points out that in a 1982 rulemaking on emergency planning, the Commission remarked on the desirability of having the pre-operational exercise close in time to commercial operation. The reason stated by the Commission was that the "exercises are best held at a later time, when the operating and management staff of the plant—who are central figures in an exercise—are in place and trained in emergency functions." (47 FR 30233, July 13, 1982). As was explained earlier, the Commission continues to support this principle and has retained the requirement that an onsite exercise of the emergency plan be held within one year prior to operation above 5 percent power.

The backfit rule, 10 CFR 50.109, applies only where the Commission seeks to impose new or different requirements on licensees. It does not apply where requirements are either relaxed or deleted.

12. Wells Eddleman, et al.

Summary of Comment. Mr. Eddleman and others joining him oppose the amendment for the following reasons:

1. "... a one year time range before operation above 5% power is a practical maximum for giving an up to date "snap shot" assessment of the level and capability of emergency preparedness existing when the plant begins to operate."

2. One year is adequate to litigate the results of the exercise, based on the Shearon Harris proceeding.

3. "... nuclear accidents have a tendency to occur early in the operation of a nuclear plant . . .", citing Three Mile Island and the Browns Ferry Fire.

4. The rule is illegal because it is an attempt to deny hearing rights to intervenors in the Shearon Harris case on the exemption granted from the existing one-year requirement.

Commission Response. The Commission disagrees that a full participation exercise is needed within one year of operation to demonstrate adequate emergency preparedness. The Commission has determined that a two-year cycle for full participation exercises is sufficient for making a finding that adequate protective measures can and will be taken in the event of an accident.

The Commission has not based its acceptance of the two year requirement for holding a full participation exercise on the time needed to litigate the results of such exercise. Rather, as indicated above and in response to comment # 11, the Commission has determined that a two-year cycle is an appropriate period of time for holding full participation exercises. With regard to

litigation the results of the exercise, under *UCS v NRC*, 735 F.2d 1437 (D.C. Cir. 1984), it is clear that the results of exercises are litigable in the operating license proceeding, irrespective of when those exercises are held, so long as the holding of an exercise is a pre-license requirement. However, while the two year time period provided in this rule was not premised on the time needed to litigate the results of an exercise, as was explained earlier, one of the factors on which the Commission did base this amendment was the observed difficulty in some cases (although not in the Shearon Harris proceeding) in scheduling the exercise so that it would allow time for a hearing while still being conducted within one year of plant readiness to be licensed. Another factor was the observed difficulty of utilities in predicting a plant's readiness for a full-power operating license. In this situation, as in the case of the Shearon Harris plant, while the holding of the full participation exercise and the licensing hearing would be completed within one year, due to unanticipated construction delays the plant would not be ready for a full-power operating license within the one year time frame.

With regard to the commenter's statement that nuclear accidents tend "to occur early," it is correct that the few major nuclear accidents that have occurred, i.e., the Three Mile Island Accident and the Browns Ferry fire, did in fact occur early in the operational history of the plants. However, the number of these occurrences is far too small to establish a "tendency." In any case, the commenter's suggestion that the need for emergency preparedness may be heightened during the initial period of plant operation, even if well taken, does not present a valid objection to this rule change because, for the reasons given above, the rule change does not decrease the level of emergency preparedness at a nuclear power plant.

The license and exemption have already been issued in the Shearon Harris proceeding. This rulemaking was not the basis upon which a hearing on the exemption request was denied. *Carolina Power & Light Co. et al.* (Shearon Harris Nuclear Power Plant) CLI-86-24, 24 NRC ____ (December 5, 1986). Certainly, if the exemption request were pending, it would now be mooted as a result of this rulemaking. The scope of issues open for litigation may be changed by rulemaking. Engaging in such rulemaking has been held by the courts not to deny hearing rights of any person. See *Siegel v. AEC*, 400 F.2d 778 (1968).

13. Laura Drey

Summary of Comment. Ms. Drey opposed the rule change but stated no reasons.

Commission Response. None required.

14. Kenneth Vickery

Summary of Comment. Mr. Vickery opposed the amendment, stating that "the NRC must know if the plants and the surrounding areas are ready for accidents when starting operation since many serious accidents occur early in the operating lives of nuclear power plants."

Commission Response. See response to comment of Wells Eddleman, #12 above.

15. Rachel Allen

Summary of Comment. This comment was a duplicate of Comment #14.

16. Shaw, Pittman, Potts & Trowbridge

Summary of Comment. This law firm filed comments on behalf of 9 entities holding nuclear power plant operating licenses or construction permits. These commenters supported the proposed rule, fundamentally for the reasons cited by the Commission in the notice of proposed rulemaking. The commenters also noted that the proposed rule uses the term "full-scale exercise" which is otherwise undefined in the regulations and recommended that the term "full participation exercise" be used.

Commission Response. The term "full-scale exercise" has been replaced with the term "full-participation exercise" and the last two sentences of the proposed rule have been revised for purposes of clarity.

17. Carolina Power and Light Company

Summary of Comment. Carolina Power and Light Company (CP&L) supported the amendment and cited reasons similar to those given by the Commission. CP&L noted that its recent experience in licensing the Shearon Harris facility bore out the need for the rule change.

Commission Response. None required.

18. North Carolina Department of Crime Control and Public Safety

Summary of Comment. This commenter supported the proposed rule on three grounds:

1. It makes the NRC rule consistent with FEMA's and increases internal consistency in NRC regulations.
2. It reduces undue burdens on State and local governments.
3. It allows more time for litigation of the results of a pre-operational exercise.

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Commission Response. The reasons given by this commenter support the Commission's position as stated in the notice of proposed rulemaking.

III. Commission Decision

The Commission has reviewed all comments received and has decided to proceed with a final rule. The text of the proposed rule has been altered as noted in the response to comments #5 and #16 above. Upon publication of the final rule, a full participation exercise must be held within two years prior to issuance of a nuclear power plant operating license for operation above 5 percent rated power. If the full participation exercise is conducted more than one year prior to issuance of an operating license for full power, an onsite exercise which tests the licensee's emergency plans shall be conducted one year before issuance of an operating license for full power.

Additional Views of Commissioner Assestine

I continue to believe that the requirement to conduct a full participation exercise, which includes State and local government participation, within one year prior to issuance of an operating license is needed to provide an accurate and timely verification of the adequacy of emergency preparedness. The purpose of this requirement is to provide an up-to-date assessment of the state of emergency preparedness for a new plant at the time the plant receives an operating license. This requirement has been easily satisfied in most cases. In the few cases in which there has been some difficulty, the Commission's exemption process provides a suitable alternate method for addressing the situation. Given the satisfactory experience with the current rule and the benefit in having up-to-date and accurate information on the state of emergency preparedness at new nuclear power plants, I would not relax the existing one-year requirement for a full participation exercise.

Environmental Assessment and Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. See 10 CFR 51.20(a)(1). Moreover, the Commission has determined, pursuant to 10 CFR 51.32, ...

that the final rule has no significant environmental impact. This determination has been made because the Commission cannot identify any impact on the human environment associated with changing the timing of full participation of State and local governments in pre-licensing emergency preparedness exercises from within one year of license issuance to within two years.

The need for this rulemaking is explained in the Supplementary Information accompanying this final rule. The alternative approaches that were considered in this rulemaking proceeding were:

1. To retain the requirement for a full participation exercise within one year of issuance of an operating license.
2. To relax the requirement to within two years of issuance of an operating license.

There were no environmental impacts identified from either of the alternatives considered.

In addition, when promulgating the original emergency planning and preparedness regulations in 1980, the NRC prepared an "Environmental Assessment for Final Changes to 10 CFR Part 50 and Appendix E of 10 CFR Part 50, Emergency Planning Requirements for Nuclear Power Plants" (NUREG-0685, June 1980), and concluded that under the criteria of 10 CFR Part 51 an environmental impact statement was not required for the Commission's emergency planning and preparedness regulations, which included 10 CFR Part 50, App. E as hereby revised. NUREG-0685 may be examined in the Commission's Public Document Room, 1717 H Street NW., Washington, DC. Copies are available for purchase through the Superintendent of Documents, USGPO, Box 37082, Washington, DC, 20013-7082.

Paperwork Reduction Act

The final rule contains no information collection requirements and therefore is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the action and the alternatives considered by the Commission. A copy of the regulatory analysis is available for inspection and copying, for a fee, at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from Michael T. Jamgochian, Regulatory Applications

Branch, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 443-7657.

Backfit Analysis

This final rule does not modify or add to systems, structures, components or design of a facility; the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility. Accordingly, no backfit analysis pursuant to 10 CFR 50.109 is required for this final rule.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. The rule concerns the timing of a full participation exercise of emergency plans for applicants for nuclear power plant licenses. The electric utility companies owning and operating these nuclear power plants are dominant in their service areas and do not fall within the definition of a small business found in the Small Business Act, 15 U.S.C. 632, or within the Small Business Size standards set forth in 13 CFR Part 121. Although part of the burden for the conduct of emergency preparedness exercises falls on State and local governments, the final rule, by changing the frequency of the requirement, if anything lessens the amount of the current burden. Thus, the final rule does not impose a significant economic impact on a substantial number of small entities, as defined in the Regulatory Flexibility Act of 1980.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 50:

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52 FR 19303
Published 5/22/87

10 CFR Parts 50 and 51

Domestic Licensing of Production and Utilization Facilities; Communications Procedures Amendments; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

SUMMARY: This document corrects a final rule amending 10 CFR Part 50 and 51 with regard to procedures for submitting correspondence, reports, applications, and other written communications pertaining to the domestic licensing of production and utilization facilities. The final rule was published on November 6, 1986 (51 FR 40303) and inadvertently omitted a recently published revision of one of the affected sections. This action is necessary to return the omitted information and to inform the public and licensees of this omission.

FOR FURTHER INFORMATION CONTACT: Donnie H. Grimsley, Director, Division of Rules and Records, Office of Administration and Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-7211.

In FR Doc. 86-25045, published in the *Federal Register* of Thursday, November 6, 1986, make the following correction:

1. On page 40309, in the first column (containing the revision to § 50.54(f)), in the fifth line ending with the word "revoked.", insert the following words after the period:

Except for information sought to verify licensee compliance with the current licensing basis for that facility, the NRC must prepare the reason or reasons for each information request prior to issuance to ensure that the burden to be imposed on respondents is justified in view of the potential safety significance of the issue to be addressed in the requested information. Each such justification provided for an evaluation performed by the NRC staff must be approved by the Executive Director for Operations or his or her designee prior to issuance of the request.

Dated at Bethesda, Maryland, this 16th day of May 1987.

For the Nuclear Regulatory Commission:

James M. Taylor,

Acting Deputy Executive Director for Operations.

52 FR 28963
Published 8/5/87
Effective 10/5/87

10 CFR Part 50

Changes in Property Insurance Requirements for NRC Licensed Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations requiring licensees to maintain substantial amounts of onsite property insurance to provide financial security for stabilizing and decontaminating their licensed reactors in the event of an accident. These changes will increase the amount of insurance required to \$1.06 billion, impose a modified decontamination priority on any proceeds from such insurance, and require that proceeds subject to the decontamination priority shall be paid to an independent trustee. All commercial reactor licensees are subject to this rule.

EFFECTIVE DATE: October 5, 1987.

FOR FURTHER INFORMATION CONTACT: Robert S. Wood, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301/492-8413.

SUPPLEMENTARY INFORMATION:

I. Background

On November 8, 1984, a proposed rule was published in the *Federal Register* (49 FR 44645) which would increase the amount of onsite property damage insurance that commercial reactor licensees are required to carry pursuant to 10 CFR 50.54(w). Operating reactor licensees are currently required to carry both (1) the maximum amount of property insurance offered as primary coverage by either American Nuclear Insurers/Mutual Atomic Energy Reinsurance Pool (ANI/MAERP) or Nuclear Mutual Limited (NML)—currently \$500 million—and (2) any excess coverage in amount no less than that offered by either ANI/MAERP—\$120 million—or Nuclear Electric Insurance Limited (NEIL-II)—\$610 million. Thus, the minimum currently required under the rule is \$500 million primary coverage and \$120 million excess coverage. By buying both excess layers, utilities are able to purchase a total of \$1.23 billion in property insurance.

The proposed rule also provided for a modified decontamination priority on any proceeds from such insurance and sought comment on several related issues.

II. Summary and Analysis of Comments

The NRC received 35 comments on the proposed rule to amend its property insurance regulations. The comments may be grouped as follows:

- 21 Utilities
- 5 Counsel to Utilities
- 3 Insurers/Insurance Trade Groups
- 2 Utility/Nuclear Trade Groups
- 2 Individuals
- 1 Bar Association Committee
- 1 Environmental Interest Group

Because the issues considered in the rulemaking are complex and affect different utilities in different ways, the focus of the comments varied considerably. Nevertheless, the majority of utility commenters tended to endorse the positions taken by two trade groups, the Atomic Industrial Forum and the Edison Electric Institute, but chose to emphasize areas of their particular concern. The two individuals who commented tended to support the positions of those utilities with smaller plants worried about being required to carry more insurance than they believe is necessary. The set of comments from the environmental interest group supported most aspects of the NRC's proposal. The insurers provided a slightly different perspective from the utilities but made many of the same points. The Bar Association Committee comments provided the most distinct perspective on one aspect of the proposed rule, the decontamination priority.

The following is a detailed discussion and analysis of the comments received arranged according to topic. The topics are: (1) Amount of insurance; (2) method of future adjustment of insurance; (3) site-wide vs. unit coverage; (4) State prohibitions against buying certain types of insurance; (5) the decontamination priority; and (6) other issues. Of greatest concern to the commenters was item five, NRC's proposal to require insurance proceeds to be used first to decontaminate the facility when so required to protect public health and safety and so ordered by the Director of the Office of Nuclear Reactor Regulation.

1. Amount of Insurance

Summary of Comments: Most of the commenters, including most utilities and their representatives, either supported the proposed coverage limit of \$1.02 billion or at least found it acceptable or non-burdensome. However, most of those who accepted the proposed limit in principle suggested that the rule be modified to reflect the potential for reductions in capacity because of changes in the insurance markets. To avoid such a situation, several commenters suggested that the rule be

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modified to require either \$1.02 billion or, if that amount were not available, the total of the primary coverage offered by either ANI/MAERP or NML plus the total excess coverage offered by both ANI/MAERP and NEIL-II. Others suggested a modification to allow utilities which may incur property losses during a particular policy year to take reasonable steps to have their insurance reinstated so as not to be in technical violation of NRC's regulations. To avoid this, commenters suggested that the NRC clarify its position that claims made by a utility which resulted in a reduction in policy limits for that policy year would not be considered a violation of NRC regulations. Alternatively, some proposed that § 50.54(w) be amended to require a licensee to take reasonable steps to obtain reinstatement of insurance, an action keeping that licensee in compliance with § 50.54(w). Another commenter suggested that reductions in capacity could be handled by allowing a "cushion" of \$50 million to \$100 million between what is available and what the NRC requires. Special action should be required on reinstatement only if it affected public health and safety.

A few commenters took issue with the amount established. One suggested that the rule is not sufficiently flexible because it would require insurance to be purchased from all insurers offering this coverage, which tends to limit a utility's options. It was alleged that this requirement might also lead to anti-competitive behavior. Another stated that the NRC should not be concerned with the full cost of restoring a reactor to service after an accident but rather with the costs associated with protecting public health and safety. This commenter suggested using decommissioning funds for cleaning up after an accident, and stated that, because of lessons learned from TMI, cleanup costs have been substantially reduced. Another commenter suggested rounding off required coverage of \$1 billion because of the lack of precision in establishing a required amount. A non-utility commenter suggested that the "enormous" premiums generated for property insurance are directly removed from expenditures that would otherwise be made for nuclear safety. One commenter suggested that requiring a specific dollar amount, rather than all that is offered, would lead to the established figure being considered by utilities a maximum as well as a minimum.

Several commented on the related issue of whether special provisions should be made for licensees of smaller reactors. Most who commented on this issue supported the NRC proposal of not specifically providing for smaller reactors in the rule but rather treating

them on an ad hoc basis through the exemption process. A few commenters indicated their support for special provisions for smaller reactors based on physical size, core inventory, etc. Even those against special treatment of smaller reactors suggested that existing exemptions should remain unaffected by the new rule and that the final rule should clarify that this interpretation is correct.

NRC Response: 1.a. Issue: Amend the rules to reflect reductions in available insurance through changes in insurance capacity.

Response: The NRC believes there is some merit in commenters' proposals to address in the rule the problem of reductions in capacity. To require more than what is available would be meaningless because licensees' only realistic alternative to buying insurance would be to self-insure which the NRC determined would provide no additional assurance. This is discussed under issues "4". Further, the Commission has traditionally never required more insurance than that generally available. Surety bonds, letters of credit, and other methods of assurance may be available to certain licensees in relatively small amounts, but would probably not be generally available especially if capacity shrank substantially.

Consequently, the NRC has modified the rule to allow the lesser of the specific amount or the maximum available from insurance sources. The Commission will continue to monitor the adequacy of the amount of property insurance that is available to reactor licensees.

The NRC also believes that there is justification for amending the rule to provide reasonable time for reinstatement of insurance when a claim filed by an insured causes coverage at a facility to be reduced during the remainder of the policy year by the amount of the claim. Because a reduction would be for only the remainder of the policy year, after which the insurance would be automatically reinstated, the NRC does not believe a serious threat to public health and safety would exist. It is highly unlikely that any single utility would face two large accidents within one year at the same site. Therefore, the NRC has modified the rule to require that licensees take reasonable steps to obtain reinstatement of insurance within 60 days.

1.b. Issue: Change the amount of insurance required.

Response: Because most commenters supported the amount of coverage proposed in the rule, there was little discussion of whether that figure should be changed. A few commenters stated that coverage was higher than necessary to protect public health and safety or too

imprecise to be specified to the degree done in the rule. However, in the proposed rule, the rationale for requiring \$1.02 billion was not only that this was the most available at that time, but that it approximated the maximum estimated in a PNL study¹ to be necessary to clean up a reactor in its entirety after an accident. The actual maximum required was estimated to be \$1.06 billion. The amount currently available is \$1.23 billion. The Commission believes that \$1.6 billion should be required, because at least that amount is now available and no other amount is as technically supportable.

The NRC does not believe that most utilities would have difficulty obtaining the slightly higher amount since most choose to buy the maximum available. The NRC agrees that the process of determining the actual amount needed to protect public health and safety is imprecise and that the threat to public health and safety usually decreases as cleanup progresses. Clearly, there is a sliding scale of effect on public health and safety so that after some undetermined point is passed, the contributions to public health and safety that additional amounts of insurance would make are less significant, although this problem is addressed more fully in the discussion on the decontamination priority. Thus, there currently appears to be no adequate basis for selecting any figure that would be better than the amount suggested in the PNL report. The NRC is not persuaded that there is any compelling reason to keep the \$1.02 billion originally proposed, or to round off to \$1 billion, or to choose some figure other than the \$1.06 figure derived from the PNL report.

The NRC is also not persuaded by the argument that requiring the purchase of insurance is unduly restrictive or may lead to anti-competitive behavior by forcing the purchase of insurance from all carriers. Other carriers could conceivably enter the insurance market. In fact, by requiring a specific dollar amount rather than insurance from specific carriers, NRC has avoided a

¹ *Technology, Safety and Costs of Decommissioning Reference Light Water Reactors Following Postulated Accidents.* (NUREG/CR-2601). Pacific Northwest Laboratory, November 1982. (See especially pages 2-26 to 2-28. The PNL study estimated that accident cleanup costs at a reference PWR following a scenario 3 accident would be approximately \$404 million. However, additional costs that can appropriately be ascribed to such an accident include:

Base operations and maintenance.....	\$124M
Design differences (when comparing to TMI-2).....	\$64M
Cost escalation during cleanup.....	\$209M
Additional decontamination of the containment building.....	\$100M
Net Stabilization cost.....	\$139M

When these costs are added to the \$404 million basic cleanup cost estimate, a total of \$1.06 billion is derived.) This report is available for purchase from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082.

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restriction which would have prohibited others from offering the insurance. Similarly, NRC does not accept the argument that the \$2-3 million spent per reactor on insurance premiums each year represent a drain on a licensee's expenditures on safety. These premiums represent only small percent of a licensee's annual expenditures on operating the reactor safely. NRC also notes that the utilities did not state that they had been prevented from receiving ratepayer revenues to cover the insurance premium expenses.

The argument that a specified dollar amount will be considered a maximum as well as a minimum is beside the point. The Commission has based its amount on what the PNL study determined would be needed for decontamination and cleanup following an accident. Any amount above that has not been shown to be significant in protecting health and safety, but represents the economic replacement of the facility itself. If a utility decides not to insure for the replacement value of its plant, that is its decision to make.

1.c. Issue: Clarify that exemptions already granted will not be affected by new rulemaking.

Response: The NRC agrees that the reasons for exemptions from the current rule have not been changed by the final rule. Exemptions have been granted to four licensees of small reactors from carrying the full amount of insurance currently required by 10 CFR 50.54(w). These exemptions were based on case-by-case analysis of accident costs at the specific plants. Increasing the required amount of insurance based on general technical studies in no way negates the continued validity of the specific studies upon which the existing exemptions were based. Thus, the exemptions for amounts of property insurance required should remain in effect. Licensees currently exempt from full requirements of 10 CFR 50.54(w) will not be required to reapply for an exemption.

2. Method of Future Adjustment of Insurance

Summary of Comments: Almost all who commented on this issue suggested that future changes should be effected by rulemaking based on a periodic assessment of need. Some suggested updating the PNL report. Commenters generally argued that relying on some formula tied to measures of inflation or increasing insurance based on availability would not be appropriate. They believe that an inflation-based formula probably would not reflect the actual needs for insurance necessary to protect public health and safety because decontamination cost changes could not be measured accurately by any existing cost index. Additionally, changes in an index might lead to property insurance

requirements that would outstrip the availability of insurance. Similarly, requirements based simply on the capacity available would not necessarily equal the amount necessary for decontamination. Insurance capacity tends to increase based on the demand for it. This demand is not only comprised of funds necessary for decontamination and debris removal, but also reflects the needs of insureds and their owners for compensation to replace the facility, a concern beyond the province of the NRC.

One commenter suggested that insurers determine the future amount to be required, which presumably is akin to requiring whatever capacity is available.

NRC Response: The NRC basically accepts the reasoning propounded by most commenters on this issue. Property insurance capacity available now has apparently reached, if not exceeded, the maximum amount necessary to decontaminate and clean up a large commercial reactor as determined by the PNL study. Although there may be cost increases in the future, no satisfactory formula for measuring them exists. Unlike such measures as the Consumer Price Index or the Handy-Whitman construction index, measures of decontamination costs depend on a very limited universe of experience. Furthermore, present trends suggest that growth in insurance capacity will outstrip decontamination cost escalation. It can be expected that most licensees will purchase the maximum available notwithstanding changes in NRC requirements.

Of course, NRC resources might be required to perform periodic analyses to determine changes in accident recovery costs and possibly to conduct rulemaking based on these analyses. Nevertheless, as one commenter has pointed out, any future rulemakings should be substantially less onerous and involved than the present one. Even PNL technical studies should be substantially less expensive if the same cost estimation methodology were to be used. Thus, the costs to the NRC of any future rulemaking should be lower. These costs would most likely be less than the excess premium costs incurred by those few licensees who would be required to buy more insurance than they otherwise would because of any automatic upward escalation of insurance requirements as discussed above.

3. Site-Wide vs. Unit Coverage

Summary of Comments: Very few commenters addressed this issue directly, although some discussed it in relation to the reinstatement considerations covered under issue "1". Consequently, most recommendations were concerned with allowing a reasonable period for licensees to obtain

reinstatement of coverage for their facilities. One commenter suggested that some latitude be allowed so that different licensees sharing the same site would not be required to maintain a single insurance limit for the site. Most others strongly endorsed the NRC's acceptance of site-wide as opposed to per-unit coverage.

NRC Response: The NRC continues to believe that site-wide coverage is appropriate given that general per-unit coverage has not been and probably will not be available and that the chance of a second accident occurring at one site during a policy year prior to reinstatement of the full policy limits is extremely remote. As indicated under issue "1", the NRC also believes there is some merit in revising the rule to allow reasonable steps to be taken for reinstatement. With respect to the comments that provision be made for units of different licensees at the same site, the NRC agrees. Although per-site coverage is acceptable where a single licensee owns more than one reactor, separate coverage is needed for different licensees operating different units at the same site. This is because differences in factors such as reactor design and utility management can result in different risks for different licensees. In addition, separate coverage conforms to the manner in which reactor property damage insurance is offered and held. For these reasons, the final rule requires each licensee to obtain property damage insurance for its nuclear facilities. Thus, different licensees operating different units at the same site would each have to provide coverage for their reactor units.

4. State Laws Prohibiting the Purchase of Certain Insurance

Summary of Comments: Relatively few comments were received on the issue of what should be done about those utilities subject to State laws or constitutional provisions prohibiting the purchase of mutual or retroactive insurance.² All those commenting on this issue insisted that the NRC must show greater flexibility to those utilities prohibited from buying full insurance coverage. Commenters suggested that

² Prohibitions generally take two forms. One prohibits public entities in some States from owning stock in private corporations. Such prohibitions have been construed to include the purchase of insurance from mutual insurance companies whereby the insured becomes an owner of the company. A second prohibits public entities from extending credit to private corporations, an action interpreted to include the payment of retrospective premiums. The insurance offered by NML and NEIL-II is mutual insurance and may require the payment of retrospective premiums.

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§ 50.54(w)(3)³ of the existing rule should be retained. This section provides some leeway for affected utilities either to obtain alternate coverage or to be exempted from unachievable NRC requirements.

Several commenters indicated that they have taken a variety of steps to attempt to purchase additional insurance. One commenter described recent efforts to amend the sections of the Texas Constitution pertaining to the prohibitions against purchasing insurance. The only way the Texas Constitution can be amended is by referendum and the proposal submitted to Texas voters in November 1984 was defeated. Another commenter indicated that the Nebraska Constitution prohibits public entities in the State from becoming "a subscriber to the capital stock, or owner of such stock, or any portion of interest therein of any railroad, or private corporation, or association" (Article XI, Section I). The New York Power Authority stated that NEIL-II excess insurance is unavailable to it at the present time but did not explain why.

Some commenters indicated that they have made efforts to secure equivalent protection, including surety bonds or letters or lines of credit. However, instruments in the amount necessary to comply with the rule are not available. Even if available, however, these commenters concluded that "the existence of such protection on a liability (however contingent), backed by no assets and not covered by any current revenues, would effectively preclude them from future financing needed to maintain, improve, and expand their physical plant." Commenters concluded, therefore, that they would be unable to furnish evidence of equivalent protection in accordance with the proposed rule.

Commenters suggested that three alternatives exist. First, affected utilities could continue to explore with NEIL-II the possibility that through amendment to its by-laws and charter and to its current policies, NEIL-II could offer insurance structured to comply with State law. Nebraska publicly-owned utilities have done this and are awaiting a decision by the Nebraska Supreme Court. Second, the relevant portions of State laws or constitutions could be amended. However, as indicated above, this could be a protracted process with no assurance of success. Third, licensees could seek exemption under 10 CFR 50.12 from the proposed

amendments. Several commenters mentioned that if these alternatives were unavailable, they would probably be forced to shut down their reactors at enormous cost.

Finally, one commenter suggested that one result of the NRC's proposal in this area was to inject itself into the regulation of terms and conditions of property insurance, a result the NRC previously indicated it wished to avoid.

NRC Response: The proposed rule was designed to allow utilities either to purchase the requisite insurance or to demonstrate an equivalent amount of protection by alternate means. When the Commission published the proposed rule for public comment, it believed that such alternate means of financial assurance would be available. This assumption formed the basis for the Commission's conclusion that it probably could not promulgate a rule that would preempt the State prohibitions at issue. Based on the comments received, however, it now appears that alternate means of protection might not be available to some utilities. As noted above, these utilities indicated that surety bonds or letters or lines of credit are not available in the amount necessary to comply with the proposed rule. Self insurance, although discussed as a possibility in the legal analysis of the preemption question, would not be acceptable because the potential liability would greatly exceed the net assets of the affected utilities. Thus, a guarantee based on the financial strength of the licensee would be insufficient. A trust fund based on collections from customers would be prohibitively expensive if funded immediately, because it would require collecting the entire amount in advance. If funded over a period of time, it would not meet the Commission's objective of providing financial assurance for decontamination and cleanup because an accident could occur before the full amount had been collected.

In these circumstances, the Commission believes that a clear conflict exists between the requirements of Federal and State law. The Commission has determined that \$1.06 billion of nuclear property damage insurance is needed to stabilize, decontaminate and clean up a reactor after an accident so as to mitigate potential threats to the health and safety of workers and the public and to the environment. Accordingly, the Commission is requiring reactor licensees to purchase this insurance. Some State laws or constitutions prohibit certain licensees from purchasing mutual or assessment insurance. No other insurance is available in an amount sufficient to comply with the Commission's

requirement. There are no reasonable alternative means of financial assurance available to these licensees. Based on these changed circumstances, the Commission believes that its property insurance rule would preempt conflicting State laws.

There can be no doubt that this rule is concerned with reactor safety. Indeed, in discussing the issue of whether to impose a decontamination priority in the proposed rule the Commission stated:

In fact, the Commission has no reason to impose a property insurance requirement other than to protect the public health and safety. Proceeds from insurance would be used both to assure that contamination from a reactor immediately after the accident did not threaten public health and safety and the environment and to eliminate delays and degradations to the cleanup process that could cause threats to health, safety and the environment over time.

Thus, the rule operates in an area of exclusive Federal control. Although the State prohibitions at issue do not attempt to regulate within this area, they prohibit what the Commission's rule requires. They would, therefore, be preempted because they are in direct conflict with Federal law. It should be noted that "[f]ederal regulations have no less preemptive effect than federal statutes." *Capital Cities Cable, Inc. v. Crisp*, 81 L.Ed.2d 580, 589 (1984), quoting *Fidelity Federal Savings and Loan Assn. v. De La Cuesta*, 458 U.S. 141 (1982). In addition, the State prohibitions concern insurance, a matter that the States have traditionally regulated. Accordingly, Congressional intent to preempt must be "clear and manifest." *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947). Such intent is present, however, when the requirement of Federal and State law are in conflict. See *Florida Avocado and Lime Growers v. Paul*, 373 U.S. 132, 142-43 (1963); *Ferebee v. Chevron Chemical Co.*, 736 F.2d 1529 (D.C. Cir. 1984), cert. denied, 469 U.S. 1062 (1984).

A conflict with Federal law arises when compliance with both Federal and State law is impossible or the State law frustrates the accomplishment of a Federal objective. *Pacific Gas and Electric Co. v. State Energy Resources Conservation and Development Commission*, 461 U.S. 190, 204 (1983). In *Capital Cities*, supra, the Supreme Court held that an FCC regulation requiring cable television operators to carry certain broadcast signals without alteration preempted an Oklahoma constitutional provision prohibiting the advertising of alcoholic beverages within the State. State law compelled deletion of wine commercials, an action that Federal law prohibited. Cable operators who complied with Federal law were subject to criminal prosecution under State law.

³ This paragraph reads, "When a licensee is prohibited from purchasing on-site property damage insurance because of state or local law, the licensee shall purchase the specific amount of such insurance found by the NRC to be reasonably available to that licensee, or to obtain an equivalent amount of protection . . ."

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The Court found a conflict based on the impossibility of complying with both Federal and State law, as well as obstruction of the Federal objective of increased program diversity. 81 L.Ed.2d at 593-94. Similarly, it is impossible for a reactor licensee to comply with both the Commission's rule requiring the purchase of nuclear property damage insurance and the State constitutional provisions prohibiting the purchase of that insurance. In addition, the State prohibitions interfere with the Federal objective of exclusive Federal regulation of reactor safety. Thus, the provisions of Federal and State law are clearly in conflict.

This conclusion is consistent with recent Supreme Court decisions on Federal preemption under the Atomic Energy Act, notwithstanding the absence of a conflict in those cases. In *Pacific Gas*, supra, the Court upheld California's moratorium on the certification of new nuclear power plants pending Federal approval of a demonstrated technology or means for the permanent disposal of high level radioactive wastes. The Court reasoned that, under the Atomic Energy Act, Congress provided for a system of dual regulation of nuclear-generated electricity in which the Federal Government maintains complete control over reactor safety and the States exercise their traditional authority over economic questions, such as the need for power, type of facilities to be licensed, land use, and ratemaking. Because the moratorium was based on economic rather than safety concerns and did not conflict with Federal safety regulations, the Court held that the California statute was not preempted. The Court relied on the fact that the moratorium would only affect reactors at the planning stage, cautioning that "[s]tate regulations which affected the construction and operation of federally approved nuclear power plants would pose a different case." 461 U.S. at 223 n.34. The State prohibitions at issue here affect a reactor licensee's ability to comply with the Commission's safety requirements. Thus, they would affect the operation of a Federally licensed reactor and would not escape Federal preemption under the rationale of *Pacific Gas*.

In *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, (1984), the Supreme Court held that the Atomic Energy Act does not preempt an award of punitive damages under State tort law for personal injuries or property damage from radioactive materials. The Court examined the legislative history of the Price-Anderson Act and found ample evidence that Congress had assumed that remedies under State tort law would continue to be available to persons injured by nuclear incidents. There was no conflict

with Federal law because licensees could pay both Federal fines and State-imposed punitive damages. Citing a failure of proof, the Court declined to decide whether an award of damages could be so large as to conflict with the NRC's policy of avoiding penalties which would put a licensee out of business or have an adverse effect on safety. Thus, the Court did not preclude the possibility of Federal preemption in an appropriate case based on a conflict with Federal law.

Finally, the Commission rejects the notion that a conflict with Federal law could be avoided by the licensee's option of ceasing to operate the reactor. Rather, the Commission believes that in analyzing this issue, a court would conclude that a conflict exists where the licensee's only option is to withdraw from its Federally licensed activities. This is suggested not only by *Pacific Gas*, supra, but by other Federal preemption cases. See, e.g., *Ferebee*, supra, 736 F.2d at 1541; *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265 (1977); *Sperry v. Florida*, 373 U.S. 379 (1963).

The Commission believes that, where a reactor licensee has no reasonable alternatives to purchasing nuclear property damage insurance, the State prohibitions at issue would conflict with Federal law. For all the foregoing reasons, the Commission concludes that its property insurance rule would preempt these State prohibitions.

5. Decontamination Priority

Summary of Comments: The great majority of comments received on the proposed rule focused on the NRC's proposal to require some form of decontamination priority, that is, proceeds from insurance should be used to decontaminate and clean up after an accident before any other purpose such as facility restoration or payment of investors.

Although the comments in response to the Advance Notice of Proposed Rulemaking (ANPRM) published on June 24, 1982 (47 FR 27371) evoked a similar degree of interest in the issue of decontamination priority, comments on the proposed rule provide more detail and elaboration of the reasons for the extensive opposition to the NRC proposal.

The NRC proposal was drafted as a modified decontamination priority⁴

⁴ As proposed, paragraph 50.54(w)(3) reads, "The proceeds of this insurance shall be used first to decontaminate the licensed reactors before any other purpose when and to the extent that such decontamination is required to protect public health and safety and is so ordered to be used by the Director of Nuclear Reactor Regulation."

with hope that earlier objections by utilities could be ameliorated. In the ANPRM, utilities had objected to an absolute decontamination priority because such a priority: (1) Would conflict with trust indenture language and fuel leasing agreements that require licensees in general to maintain sufficient insurance to protect bondholders and fuel lessors in case of damage to property; (2) would be unnecessarily restrictive in allowing utilities to respond to an accident and thus would inhibit an expedited recovery and adversely affect public health and safety; (3) could, because of reduced investor protection, lead to reduce access to funds from investors or increased cost of funds; and (4) would be unnecessary because of the existing priority offered in the excess layer through NEIL-II. (This priority covers "... all expenses necessarily incurred in discharging the obligation or liability of the Insured(s) to remove debris of and to decontaminate the property covered by this Policy following direct physical damage to such property caused by any peril covered under the Underlying Property Policy . . ." (see NEIL's Decontamination Liability and Excess Property Insurance Policy, p. 12)).

Many of these same arguments were raised again by commenters in response to the modified decontamination proposal. Some commenters indicated that a modified priority, while not as seriously affecting finances as an absolute priority, would still have substantial adverse impact. This point was made most comprehensively by the Edison Electric Institute (comment 13) and endorsed by several other commenters. It stated in part:

While the EEI recognizes that the Commission sought to afford utilities some financial flexibility to respond to any future accident by giving the Director of Nuclear Reactor Regulation the authority to require payments under the decontamination priority, the sole substantive standard guiding the use of this authority is that he may direct insurance proceeds be used 'to the extent that such decontamination is required to protect public health and safety.' . . . While this approach provides more flexibility than an absolute decontamination priority, we continue to have serious concerns about this proposal. In particular, there seems to be virtually no limit upon the discretion of the Director, other than the 'public health and safety' standard. If an accident were to occur, we fear that the Director would immediately impose the decontamination priority for all insurance proceeds, whether or not all funds are necessary to protect public health and safety since this step maximizes his future options. Once this happens, there would be no administrative mechanism to cause a reconsideration of this decision. Moreover,

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the Director is likely to be under pressure from multiple sources to (1) require decontamination prior to other actions that may be appropriate to restore the property to operating condition and (2) manage the course of repair and clean-up through his control of the insurance proceeds. These factors cause EEL to fear that the broad discretion vested in the Director over the use of proceeds from the decontamination priority may effectively deprive utilities of any of the benefits of property insurance. In effect, the Director would become the ultimate manager of the decontamination and repair operation.

EEL believes one way to balance the need for flexibility to respond to an accident with the need to limit the Director's authority over property insurance proceeds is to restrict the time period in which any order regarding the use of proceeds from property insurance for decontamination remains in effect. Limiting the duration of any such order will ensure that post-accident response decisions are periodically reevaluated as conditions change and new information becomes available. EEL proposes that the Director's initial determination respecting use of the property insurance proceeds for decontamination shall issue a new order regarding the use of such proceeds. This second order would remain in effect for no more than six months. It could be followed by new orders which terminate every six months. All such orders should be final orders which are subject to judicial review. Each should reveal the rationale, basis and record which are relied upon support the Director's determination. In addition, the Director should sequester [sic] only those portions of the insurance funds reasonably needed for decontamination so that funds also would be available to carry out other activities necessary to restore the utility's property.

Finally, EEL interprets the Commission's proposal to allow the Director to act expeditiously without holding hearings since that could seriously delay the decisionmaking process. In order to avoid any confusion, we suggest the Commission confirm our understanding of this process.

Other commenters suggested similar problems. For example, by not establishing standards or criteria by which the Director of NRR is to order a decontamination priority, the resulting uncertainty would be as unsettling to investors as a more rigid priority. Further, such an order would probably be subject to a protracted review process, open to intervention, and might so tie up funds that the cleanup process could be hampered and public health and safety adversely affected. One commenter stated that, although the NRC has authority to impose decontamination requirements on a licensee, it does not have authority "to dictate either to insurers or to indenture trustees how they are to deal with the insurance proceeds" (comment 15). Similarly, another commenter suggested

that requiring a decontamination priority would preempt the coverages filed by ANI/MAERP with State insurance departments and would thus be in effect a preemption of State law, a result the NRC sought to avoid (comment 7, p. 2).

Another commenter analyzed several scenarios in which an accident caused varying amounts of damages and the resulting actions that probably would be taken by the trustee (Comment 15, p. 2):

If the damaged plant can be reused, decontamination would be a necessary element of the repair, and the trustee would release insurance proceeds. After initial decontamination, repairs would proceed simultaneously with decontamination. The only effect of an order establishing a priority for decontamination would be to forbid use of the funds acquired from the trustee for anything but decontamination. This would presumably require the licensee to segregate and invest the portion of the insurance proceeds that would be spent on repairs rather than decontamination and to use other sources of funds for the repairs. When the priority order was lifted, the segregated funds could then be used to replace the funds spent on repairs. In short, the priority order would cause some added bookkeeping without serving any useful purpose.

If the damaged plant could not be restored to use, the trustee might refuse to release funds for decontamination on the ground that they would not be used for repairs or replacement. However, the utility could still obtain the funds if it could provide additional unbonded property. While the utility would probably use the funds for decontamination without compulsion, NRC could require it to do so even in the absence of the proposal in § 50.54(w)(3).

If the licensee did not have additional unbonded property to offer the trustee, it could obtain the proceeds only on the basis that it would use them to build or acquire new public utility property. Thus, an NRC priority order would require the use of the proceeds for decontamination while the indenture would forbid their use for that purpose, and the licensee might be unable to reach the proceeds.

This could push the licensee into insolvency and possibly bankruptcy. We doubt that reorganization would be appealing to NRC since it might find itself with the responsibility for the cleanup and the possibility that in the post-bankruptcy period it could not recover the cleanup costs from the licensee.

Absent a priority, the trustee, in its discretion, could still refuse to relinquish the proceeds if the licensee was unable to substitute additional property. But this is not a position it would take lightly. Such a step could also push the licensee into bankruptcy, and the trustee would run the risks that (i) its efforts to use the proceeds to benefit bondholders would be automatically stayed and (ii) it would be forced to turn the proceeds over to the licensee or reorganization trustee for use in post-bankruptcy operations.

In the case of a possible bankruptcy, we believe that, as a practical matter, the licensee, its creditors and NRC would have a common interest in working out a plan that allowed the licensee to continue as an entity while decontaminating to the extent necessary to protect public health and safety. Our analysis is that the proposed priority could not facilitate that result and in some circumstances would impede it. We therefore urge that NRC reject 50.54(w)(3).

A somewhat different conclusion was reached by another commenter. This commenter suggested two approaches. First, perhaps a licensee could "identify those decontamination costs which are not treatable as capital repairs and cause them to be insured separately or at least paid separately under existing insurance. It may then be possible to conclude that such insurance is not property insurance which must be payable to mortgage trustees." (Comment 20, p. 2-3). This approach would allow release of a significant amount of funds not subject to the control of the trustee. Second, funds would be released by the trustee if they were to be used for repairs that would be treated as additions "chargeable to plant accounts in accordance with sound accounting practice." (Ibid, p. 3) However, this commenter concludes,

To the extent that decontamination expenses do not constitute repairs so chargeable, the trustee may refuse to release the funds unless the Company happens to have available property additions which have not previously been tendered to the trustee. There can certainly be no assurance that the Company will have independently available property additions to tender to the trustee to obtain such release. The Company simply may be unable to obtain release of funds to expend on decontamination, at least to the extent that such expenditures do not constitute repairs under the provisions of the mortgage. (Ibid, p. 3)

Other commenters emphasized the impact on investor perceptions. One commenter indicated that because of the lack of clear standards for imposing a decontamination priority, bondholders probably would not have a "significantly greater sense of security for their investment than they could have had under the 1982 proposal of an absolute priority." (Comment 18, p. 4). Further, "existing bondholders purchased their bonds with an understanding that Federal regulatory policy would allow utilities to protect their investment with insurance." (Ibid, p. 5). A letter from Morgan Stanley & Co. was enclosed with EEL's comments to support this view. This letter states that particularly since TMI, investors expect that, "in the event of an accident, a portion of these insurance proceeds will

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be available to repair or replace their investment."

Finally, the comment from the insurance pools suggested

that they were able to pay the owner of TMI Unit 2 \$68 million for loss to their nuclear fuel, even though decontamination was barely commenced. This contributed to regaining financial stability and made it more likely that the owners could address the long-range plans to decontaminate the reactor. (Comment 31, p. 2).

Despite their strong reservations about a decontamination priority, several commenters proposed ways of making such a priority less burdensome. Suggested revisions to the proposed rule would: (1) Provide specific criteria for determining when public health and safety is endangered, such as by following limits used in 10 CFR Part 20; (2) establish "sunset" provisions so that the Director's order would last only for a specified time, e.g., three to six months subject to renewal; and (3) have the Director of NRR issue a show cause order requiring the licensee to explain its prepared work plan and schedule and related expenditures are in the public interest. Following a hearing on the show cause order, the Commission could issue a modification of the licensee's work plan or schedule. Until an order was issued, the licensee would be able to proceed with its work plan.

Others suggested that the term "decontamination" be defined. These commenters argued that preparatory expenditures, such as stabilization costs and purchase of equipment and other materials necessary for cleanup might not be included in the definition of decontamination priority. Similarly, the degrees of decontamination should be tied to avoiding "exposure of the off-site public to radiation levels exceeding those allowed by NRC regulations" (comment 18, p. 6) or should otherwise indicate the level above which health and safety is endangered (comment 16, p. 3).

One comment addressed the specific issue of timing the implementation of a decontamination priority to coincide with the renewal dates of the policies. Because policies issued by NML and NEIL-II are, in effect, bilateral contracts, changes would be difficult to make without mutual consent or without awaiting policy expiration.

In preparing the proposed rule, the NRC relied on comments and proposals submitted by the Association of the Bar of the City of New York (the Association) in response to the 1982 ANPRM. As indicated in the proposed rule (49 FR 44647, Co. 3), the Association determined that utility trust indentures do not in general give bondholders any

vested rights to a given amount or type of coverage. It also recognized that to respond properly to a nuclear accident, a licensee may be required to take a range of actions apart from decontamination and debris removal. Consequently, this commenter favored priority for payment of decontamination and debris removal expenses only insofar as it is "necessary to remove any significant health or safety hazard." The Association suggested this goal could be accomplished if a regulation were properly drawn, although it proposed no wording for such a regulation in its comments.

In responding to the proposed rule, however, the Association changed the focus of its comments. Although the Association indicated that it supported "in principle the form of decontamination priority which the Commission has proposed," it believes that, "as now proposed, the amendments to the Commission's property insurance regulations may not effectively provide for the decontamination priority which the Commission desires to achieve . . . that in the event of a serious nuclear accident, the utility's indenture trustee may refuse to release property insurance proceeds for decontamination or debris removal purposes." (Comment 12, p. 5).

The Association believes that "only by restricting payment of insurance proceeds to the trustee can there be any reasonable assurance that the proposed decontamination priority will prove effective." (p. 6). Such a restriction of payment would not be effective merely by payment directly to the utility because funds would still be vulnerable to creditor delays due to bankruptcy or insolvency. The Association perceives a fundamental conflict between the Atomic Energy Act, NRC regulations, and the terms of the license on the one hand and the provisions of the Bankruptcy Code on the other. The Association presents a legal analysis and synopsis of the arguments that the parties might use in obtaining property insurance proceeds and concludes from its analysis that

a decontamination priority can only be effectively implemented if the decontamination proceeds are paid neither to the indenture trustee nor the utility itself but rather into a separate trust fund previously established for that purpose. The proceeds under the insurance policy would be paid to the trustee of the trust fund and disbursed to pay for costs incurred in decontaminating the reactor and removing radioactive debris. The remaining amounts, up to the limits of the policies, would then be available to pay for property damage and these funds would be paid to the indenture trustee." (p. 13).

Finally, the Association believes that such an approach should not conflict with utility indenture provisions because such indentures generally require a utility to maintain property insurance to the same extent as companies similarly situated and operating like properties, and not a particular level of coverage. Primary policies offered by ANI/MAERP and NML would have to be modified analogously to the NEIL-II excess policy, yielding a hybrid decontamination liability and property insurance policy.

NRC Response: The NRC disagrees that a decontamination priority would conflict with bond indenture language. As the Association indicated, such language typically would require a utility "to insure its property against loss or damage to the same extent that property of a similar character is usually so insured by companies similarly situated and operating like properties."⁵ The NRC agrees with the Association's conclusion that such language would allow the NRC to impose a decontamination priority because all utility licensees would face similar conditions, would be insured "to the same extent" and would thus comply with indenture language. More recently, the Association concluded that, after a large accident, conflict between the interests of bondholders as represented by their trustees on the one hand, and the NRC on the other, could seriously impede, in some circumstances, recovery from an accident. The Association's recommended solution, i.e., to require all insurance proceeds to be deposited in a trust apart from the utility or bondholder's trustee, would provide additional assurance that funds would be available for accident decontamination and cleanup but could exacerbate this conflict, if imposed.

The extent to which this conflict would adversely affect investor perceptions and thus increase utility cost of capital and reduce access to capital is speculative. It is possible that utilities would incur some, perhaps significant, increased capital costs if a full decontamination priority were imposed. However, there are a number of factors which should temper the

⁵ One commenter indicated that its mortgage provisions require it to maintain insurance in "a reasonable amount against loss or damage by fire and from other causes customarily insured against by similar companies." (Comment 20). This is not appreciably different from the language cited by the Association. The staff has attempted without success to obtain assistance from the Federal Energy Regulatory Commission (FERC) and others to determine the extent to which indenture language varies.

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rational investor's possible disquiet. First, as some commenters pointed out, the NRC has the authority under sections 161, 182(a), and other sections of the Atomic Energy Act to impose a decontamination priority after an accident whether or not such a priority is actually spelled out in 10 CFR 50.54(w). Given this, it can be argued that a conflict existed all along, although perhaps not known to certain investors.

Second, investors now are covered for a relatively small portion of their investment, although it has increased from the maximum \$300 million coverage at the time of the TMI-2 accident. Because NEIL-II coverage has its own decontamination priority,⁶ the most coverage investors could currently expect is \$620 million. When compared to the \$5 billion or more to construct the latest nuclear power facilities, an investor would be covered for little over 10% of the value of the investment. The NRC doubts that an investor would derive security from this limited coverage but would tend not to invest if an NRC decontamination priority were imposed.

Third, commenters essentially ignored in their comments the rapid growth in insurance capacity. The NRC cannot speculate on whether and to what extent capacity will grow further. Nevertheless, because of the shortfall in coverage as compared to facility value, it would be expected that demand for, if not supply of, insurance will remain high. If capacity continues to grow at a pace that substantially exceeds possible increases in estimated facility decontamination costs, it would be expected that investors would find a decontamination priority progressively less onerous as more funds would be made available exceeding those subject to a priority.

Fourth, as some commenters have suggested, a decontamination priority is only necessary for a scenario in which a plant is completely written off and the interests of the NRC and indenture trustee would conflict to the extent that bankruptcy might occur. Without a priority, some commenters argue that both the NRC and the trustee would have incentive to work out a plan "that allowed the licensee to continue as an entity while decontaminating." (Comment 15) Again, the NRC disagrees that a decontamination priority would destroy that incentive. If the priority

itself ever became an impediment to accident recovery and resulted indirectly in a threat to public health and safety, it could be rescinded or made part of a broader recovery framework as the previous commenter discussed. The NRC, no less than the investors, would not wish to precipitate bankruptcy and so impede accident recovery.

The NRC rejects the argument that a decontamination priority would reduce flexibility in responding to an accident. Obviously, the NRC would not interpret a priority in so rigid a manner as to preclude prudent practices necessary to an orderly decontamination, such as equipment purchases, stabilization activities, etc. The decontamination priority was not meant to be applied sequentially in that all expenditures on cleanup would have to be made before any others. The priority has been worded to allow licensee flexibility, particularly after a reactor has been stabilized after an accident. Despite possible utility reluctance, the priority should be compatible with the broadest range of actions necessary to protect public health and safety. Further, the decontamination priority is meant to be invoked only when there would be serious concern over the availability of funds for decontamination.

Although most commenters opposed imposition of a decontamination priority, many did recommend changes to the wording of the priority that would make it less onerous. One change, suggested with slight variation by several commenters, would require that a definite time limit be established for an order by the Director of NRR. Some suggested that a time limit, of three or six months duration, could be extended as necessary. The NRC agrees that periodic reevaluation of the need to continue the Director's order is desirable and is thus incorporating a variety of provisions in the final rule relating to duration of the priority. However, the NRC believes that, as a practical matter, orders for decontamination priority would be extended as necessary to protect public health and safety. Thus, the principal effect of sunset provisions would be to allow for additional consideration as each order was replaced or extended.

Concerning the matter of hearings, the mechanism for imposing the decontamination priority would be an order to show cause by the Director of NRC. The Commission's rules in 10 CFR Part 2, Subpart B, afford the licensee the right to demand a hearing when the NRC staff seeks to impose requirements by order. In addition, any person whose

interest may be affected by the proceeding could request a hearing or file a petition to intervene. If the Commission followed its usual practice of confining the scope of the proceeding to whether the order should be sustained, only persons opposing the order could request a hearing or petition to intervene. Petitioners who did not object to the order but might seek further corrective measures would lack the requisite interest in the proceeding. See *Bellotti v. NRC*, 725 F.2d 1380 (1983). Thus as a practical matter, the Director's ability to impose the priority without a hearing would most likely depend on the licensee's response to the order.

With regard to the commenter's concern about delay in the decisionmaking process, the Commission notes that, even if a hearing were held, insurance proceeds would not necessarily be tied up. This is because the Commission's authority to impose the priority before holding a hearing would depend on the circumstances.

Other suggested changes to the actual wording of the priority concern the definition of the degree to which public health and safety should be protected. Some commenters recommend defining what is meant by protection of public health and safety; others suggest referencing the radiation protection guidelines used in 10 CFR Part 20.

The NRC favors tying decontamination limits to 10 CFR Part 20 standards for radiation protection and the ALARA principle (as low as reasonably achievable). Notwithstanding reliance on these radiation protection standards, the NRC believes it is also necessary to work with a decontamination plan tailored both to the specific problems and characteristics of the particular site suffering the accident and to the general characteristics that differentiate decontamination after an accident from decommissioning. This approach would allow both the NRC and the licensee greater discretion in initiating and completing a safe recovery and would be particularly desirable because accidents are expected to be rare and, to a large degree, unique. The NRC also believes that some commenters have confused the purpose of this rule—to provide adequate funds for recovery after an accident—with the process of accident recovery itself which is more thoroughly covered in other parts of the NRC's regulations.

This rule applies to decontamination after an accident; it does not encompass decommissioning. The NRC realizes that there may be an overlapping area of

⁶ The fact that NEIL-II itself has a decontamination priority raises the question of whether NEIL-II's priority would not also conflict with bond indenture language. The comments directed to this area did not differentiate between the adverse effects that the NEIL-II priority and the NRC priority might have.

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tasks which cannot be defined as uniquely decontamination or decommissioning. For example, certain components would be removed and disposed of whether as a result of cleanup following an accident or as part of decommissioning operations at the end of a plant's useful life. The NRC has attempted to minimize this overlap, but acknowledges that it cannot be eliminated.

The NRC understands, as confirmed by ANI officials, that insurers would likely pay for activities required or components damaged as a result of the accident. Insurers would not distinguish between accident decontamination and decommissioning when paying out insurance proceeds, as long as a licensee could offer proof of causation of damage.

If a reactor suffered an accident so severe that restart would not be possible, the reactor would have to be decommissioned. In this situation, the distinction between decontamination and decommissioning would be difficult to maintain. For example, a licensee could use property insurance proceeds for decontamination activities, such as removal and disposal of certain components, that under normal circumstances would clearly be considered part of the decommissioning process. As a result, the licensee might be able to preserve some decommissioning funds for other purposes following completion of decommissioning. Conversely, a licensee might try to draw upon funds reserved for decommissioning to perform decontamination tasks if property insurance proceeds were expended prior to completion of decontamination.

If an accident were severe enough to prevent restart of the reactor, however, essentially all of the property insurance proceeds would likely be needed for decontamination. Because property insurance also covers replacement of components, equipment, and structures, the insurance proceeds would be insufficient under current (and likely future) limits to cover all replacement as opposed to decontamination expenses. Thus, it is likely that all property insurance proceeds would be paid out regardless of whether used for accident decontamination or decommissioning activities.

In sum, the Commission is implementing a decontamination priority further modified to reflect many commenters' concerns. The section of the rule containing the priority, 19 CFR 50.54(w)(3), begins by establishing a priority for stabilizing the reactor after an accident so as to prevent any

significant risk to the public health and safety. After the reactor is safe and stable, the licensee is required under section 10 CFR 50.54(w)(3)(ii) to submit a cleanup plan that identifies all cleanup operations necessary to bring the reactor to the point of decommissioning or restart. Various cleanup operations are identified and reference to 10 CFR Part 20 occupational exposure standards is made so as to differentiate between decontamination after an accident and decommissioning. Section 10 CFR 50.54(w)(3)(iii) addresses the scope of the decontamination priority.

With respect to the Association's recommendation that all insurance proceeds be placed in trust so as not to be available to the bondholder's trustee, the NRC believes this requirement provides additional protection of public health and safety. As explained in the Association comments, utility bond indentures typically require available property insurance proceeds to be paid directly to the indenture trustee, not to the utility. This means that in the event of a serious accident, the insurance policy proceeds would not be under the control of the utility. If the NRC were to order the utility to spend all or part of the proceeds for protection of the public health and safety, the utility would be powerless to do so without asking for and receiving the proceeds from the trustee.

However, the bondholder trustee might not be willing or even legally able to release the proceeds. The trustee's obligation is not to the public health and safety, but to bondholders, and the bondholders are interested in preserving their investment. Thus, utility indentures generally limit the trustee's ability to pay insurance policy proceeds to the utility to circumstances where the funds will be used for repairs to or replacement of the damaged property and the bondholder's interests will thereby be protected. Most importantly, if a utility were forced into default because of the financial consequences of a serious accident, the trustee might be legally prohibited from paying policy proceeds to the utility. As the Association points out and NRC's own experience confirms, the NRC's ability under the Bankruptcy Code to get priority for expenditures of funds for safety is very uncertain. For these reasons, the Commission is adopting the Association's proposed approach to the decontamination priority. Thus, 10 CFR 50.54(w)(4) requires that the policy proceeds be paid to a separate trust fund established for the sole purpose of protecting the public health and safety.

The NRC also believes that an approach worth further evaluation is to

seek legislation in Congress that would give preference in any bankruptcy proceeding to expenditures that mitigate threats to public health and safety. The NRC is currently studying the feasibility of this approach.

6. Other Issues

Summary of Comments: Very few comments were received that were not related to the previously discussed issues. One commenter endorsed NRC's position stated in the proposed rule of not becoming involved in regulating insurance terms and conditions (comment 1). Another endorsed the NRC's position of not requiring licensees to carry coverage from both primary insurers (i.e., NML and ANI/MAERP) (comment 19). Finally, one commenter suggested that the term "financial protection" not be used in 10 CFR 50.54(w)(2). "Financial protection," as defined in the Atomic Energy Act and 10 CFR Part 104, is used in a specific sense not meant in Part 50.

NRC Response: The NRC essentially agrees with these comments and is incorporating them in the rulemaking. The NRC agrees that the term "financial protection" might be misleading to some in the context used in Part 50. Thus, the rule will be revised to use the less ambiguous term, "financial security."

Environmental Assessment and Finding of No Significant Environmental Impact

These amendments to 10 CFR 50.54(w) will increase the amount of insurance that each commercial reactor licensee is required to maintain to clean up a licensed reactor site after an accident. The amount of required insurance will increase from a minimum of \$620 million currently required to \$1.06 billion. The rule also adds a requirement that proceeds from insurance must be used first to stabilize and then decontaminate the licensed reactors before any other purpose when and to the extent that decontamination is required to protect public health and safety and is consistent with the Commission's 10 CFR Part 20 radiation protection standards. These actions are required to provide greater assurance that commercial reactor licensees will have sufficient funds to clean up their reactors following an accident. Assurance of these funds is required so that public health and safety is not adversely affected during the cleanup process. Alternatives to this action consist of maintaining the existing rule or establishing some other limit of insurance. Neither this action nor the alternatives to it have any significant impact on the environment. No other

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agencies or persons were contacted for this action.

Consequently the Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. Although changes in insurance requirements affect the financial arrangements of licensees and have economic and social consequences, they do not alter the environmental impact of the licensed activities. As determined in the above environmental assessment, the alternatives to the proposed action likewise do not have any significant impact on the environment. No other documents related to this proposed action exist. The foregoing constitutes the environmental assessment and finding of no significant impact for this final rule.

Paper Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. This analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine and copy for a fee the regulatory analysis at the NRC Public Document Room, 1717 H St. NW., Washington, DC. Single copies of the analysis may be obtained from Robert S. Wood, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-8413.

Backfit Analysis

This final rule requiring an increase in property damage insurance does not require "the modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct, or operate a facility." Accordingly, this action is not a backfit as defined in § 50.109. However, the staff has prepared an analysis of the rule's impact in light of the factors listed in § 50.109(c). This analysis may be examined or obtained in the same

manner as the regulatory analysis mentioned previously.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities.

This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, and the NRC is adopting the following amendment to 10 CFR Part 50.

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

52 FR 41288
Published 10/27/87
Effective 11/27/87

10 CFR Part 50

Modification of General Design Criterion 4 Requirements for Protection Against Dynamic Effects of Postulated Pipe Ruptures

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Commission is amending its regulations to broaden the scope of a recent modification to General Design Criterion 4 (GDC-4). The amendment would allow the removal of numerous pipe whip restraints and jet impingement barriers as well as other related changes in all reactor types. Implementation of the amendment will increase safety since inadvertent restriction of pipe growth due to thermal

expansion and associated stresses leading to pipe cracking is avoided. Also, the duration of inservice inspection will be reduced, yielding substantially less occupational exposures.

EFFECTIVE DATE: November 27, 1987.

ADDRESSES: Copies of the written public comments are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: John A. O'Brien, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301)443-7854.

SUPPLEMENTARY INFORMATION:

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On July 23, 1986, the Commission published a proposed rule on the board scope modification to General Design Criterion 4 of Appendix A, 10 CFR Part 50 (51 FR 26393). This proposed rule contained a summary of the acceptance criteria which the Commission had developed. A 60-day public comment period was allowed. Twenty-eight written comments were received from utilities, reactor vendors, architect-engineering companies, industry groups, consulting firms and a citizen group. There was no overt opposition to the proposed rule; each commenter supported the proposed rule or its intent either in part or entirely. However, the citizens group expressed certain legal reservations which are addressed below in issues 20 and 21. A compilation of the twenty-one issues raised as a result of public comments and the accompanying Commission response is given under Issues Analysis. The text of the final rule is identical to the text of the proposed rule. The final rule should be applied consistently with the guidance in this Supplementary Information.

I. Background

Background to this rulemaking can be found in the limited scope modification to GDC-4 published as a proposed rule in the *Federal Register* on July 1, 1985 (50 FR 27006). Research performed by the NRC and industry, coupled with operating experience, has indicated that

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safety can be negatively impacted by the placement of protective devices such as pipe whip restraints near certain piping. The Commission adopted a two-step approach to the modification because safety improvements could be quickly realized without extensive and time consuming review and discussion if the scope were initially limited to the primary main loop piping of PWRs. The Commission decided not to defer the limited application of leak-before-break technology while the detailed provisions of the acceptance criteria were being reviewed and approved. Many near term operating license (NTOL) nuclear power plant units and operating nuclear power plant units had requested exemptions from the requirements of GDC-4 and could benefit from the limited scope rule. A broader application of leak-before-break technology requires adoption of the general criteria published in NUREG-1061, Volume 3, Chapter 5, November 1984, entitled "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee, Evaluation of Potential for Pipe Breaks".

II. Scope of Rulemaking

This rulemaking modifies General Design Criterion 4 to the extent that dynamic effects of pipe ruptures in nuclear power units may be excluded from the design basis provided it is demonstrated that the probability of pipe rupture is extremely low under conditions consistent with the design for the piping.

Dynamic effects of pipe rupture covered by this rule are missile generation, pipe whipping, pipe break reaction forces, jet impingement forces, decompression waves within the ruptured pipe and dynamic or nonstatic pressurization in cavities, subcompartments and compartments. However, cavities, subcompartments and compartments necessary to the containment function are not affected by this modification.

To retain high safety margins, the application of leak-before-break technology to various piping systems should not decrease the capability of containments to perform their function of isolating the outside environment from potential leaks, breaks, or malfunctions within the containment. Containments will continue to be designed to accommodate loss of coolant accidents resulting from breaks in the reactor coolant pressure boundary up to and including a break equivalent in size to the double-ended rupture of the largest pipe in the reactor coolant system. Also, the functional design for emergency core cooling systems still retains nonmechanistic pipe rupture. Environmental qualification of electrical and mechanical equipment is discussed under issue 4 below.

This amendment to GDC-4 allows exclusion from the design basis of dynamic effects associated with high energy pipe rupture by application of leak-before-break technology. Only high energy piping in nuclear power units that meets rigorous acceptance criteria is covered. High energy piping is defined as those systems having pressures exceeding 275 psig or temperatures exceeding 200 °F.

Studies completed by Lawrence Livermore National Laboratory under contract to the NRC indicate that adverse safety implications can result from requiring protective devices to resist the dynamic effects associated with postulated pipe rupture. The placement of pipe whip restraints degrades plant safety when thermal growth is inadvertently restricted, reduces the accessibility for and effectiveness of inservice inspection, increases inservice inspection radiation dosages and adversely affects construction and maintenance economics.

III. Final Rule

The final rule consists of a substitute sentence at the end of GDC-4 (replacing the sentence introduced by the limited scope rule) permitting the use of analyses to exclude dynamic effects of pipe ruptures in all high energy piping in all nuclear power units. A deterministic fracture mechanics evaluation is mandatory. Evaluations of the potential for water hammer, corrosion, creep damage, fatigue, erosion, environmental conditions, indirect failure mechanisms and other degradation sources which could lead to pipe rupture are also required. In order to demonstrate that the probability of fluid system piping rupture is extremely low, applicants and licensees may follow procedures and acceptance criteria developed by the staff.

The supporting safety analysis must demonstrate from the results of a fracture mechanics analysis that a substantial range of stable pipe crack sizes can exist for an extended period which provides detectable leaks, and that the fluid systems piping will not rupture under these conditions consistent with the design basis for the piping.

The language of the rule specifies "conditions consistent with the design basis for the piping." The design basis for piping means those conditions specified in the FSAR, as amended, and may include 10 CFR Part 50 (especially the General Design Criteria in Appendix A to Part 50), applicable sections of the Standard Review Plan, Regulatory Guides and industry standards such as the ASME Boiler and Pressure Vessel Code.

The term "extremely low" is used in this amendment to GDC-4 with

reference to the probability of fluid system pipe rupture. For reactor coolant loop piping, a representative value which would qualify as "extremely low" would be of the order of $1E-6$ per reactor year when all rupture locations are considered in the fluid system piping or portions thereof. For other piping, representative values will be developed consistent with this definition as the need arises. Alternatively, a deterministic evaluation with verified design and fabrication, in addition to adequate inservice inspection, can meet the extremely low probability criterion. The deterministic evaluation is based on the requirement that structures and components are correctly engineered to meet the applicable regulations and NRC-endorsed industry codes.

This rulemaking will introduce an inconsistency into the design basis by excluding the dynamic effects of postulated pipe ruptures while still retaining nonmechanistic pipe rupture for emergency core cooling systems, containments, and environmental qualification (see issue 4 below for additional information on potential relaxation with respect to environmental qualification). The Commission recognizes the need to address whether and to what extent leak-before-break analysis techniques may be used to modify present requirements relating to other features of facility design. However, this is a longer term evaluation. For the present, the rule allows the removal of plant hardware which it is believed negatively affects plant performance and safety, while not affecting emergency core cooling systems, containments, and environmental qualification. The Commission's primary justification for this rulemaking rests with its statutory responsibility to ensure an adequate level of protection of the public health and safety. This action also rests upon advances in the state of knowledge and technology that allow the Commission to better focus its regulatory requirements so as to improve safety of plant personnel. The Commission decided to quantify the degree to which overall safety was improved by this action, and to set forth those economic impacts associated with these safety benefits. These are highlighted below.

For existing PWRs, considering primary coolant loops only, cost savings of \$186 million and reductions of 34,000 man-rem are estimated for a population of 85 PWRs. These figures do not include savings resulting from redesign of heavy component supports. One licensee taking advantage of the limited scope modification of GDC-4 has estimated a per plant cost savings of \$20 million and reduced worker exposures of about 2,000 man-rem associated with a redesign of reactor coolant pump supports.

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The above-mentioned value-impacts were realized under the already published limited scope amendment to GDC-4. Additional benefits which can be achieved under this broader amendment are discussed below.

For existing BWRs, considering only recirculation loop piping, cost savings of \$30 million and reductions of 8,600 man-rem are estimated for a population of 38 plants.

In existing PWRs and BWRs, offsite risk is estimated to be insignificantly impacted, or if credit is taken for improved inservice inspection and enhanced safety, to be reduced by an unquantified amount.

The Commission has not quantified situations in existing plants other than those discussed above; however, it is believed that other high energy piping will also indicate favorable value-impacts.

Value-impacts resulting from this rule are greatest for future plants, where estimated costs can be reduced approximately \$100 million per unit. Of this sum, about \$30 million are direct costs and the balance stems from reduced financing costs and improved scheduling. Reduction in worker radiation exposures varies from plant to plant, but is in the range of 300 to 800 man-rem. Offsite risk is believed to decrease by an unquantified amount due to improved effectiveness of inservice inspection and enhanced safety. The above quoted figures are based primarily on the elimination of pipe whip restraints and jet impingement barriers and do not treat other facility changes that could result from this rule.

IV. Acceptance Criteria

The Commission developed a new Standard Review Plan Section 3.6.3 which gives more details on how applicant and licensee submittals will be evaluated. This document has been issued for public comment (52 FR 32626) prior to being adopted by the Commission. The Commission may also develop at some future time a Regulatory Guide after experience is gained with the use of SRP 3.6.3.

V. Invitation to Comment

Comment was invited on the following topics in the proposed broad scope amendment to GDC-4.

1. Value-impacts associated with this expanded modification to GDC-4, with particular reference to experience with the use of pipe whip restraints and jet impingement shields near nuclear reactor piping. (The value-impact analysis prepared by Lawrence Livermore National Laboratory is available for inspection and copying for a fee in the NRC Public Document Room, 1717 H Street NW., Washington, DC.)

2. The scope of piping which could or should be affected, supported by technical justification.

3. The decision to limit impacts of this modification of GDC-4 to only dynamic effects associated with pipe rupture.

4. The acceptance criteria which the Commission proposes to use to evaluate whether leak-before-break technology is applicable to specific situations.

5. Acceptable allowables for pipe-connected component supports which would provide adequate assurance that component support failure would not be a source of the pipe rupture loads being eliminated from the design basis.

6. The imposition of a temperature limitation as a way of avoiding concerns with creep damage.

VI. Issues Analysis

Issue 1: Margins for leak detection should not be rigidly fixed but should be based on uncertainties for each particular situation.

Commission Response: In the Commission's proposed acceptance criteria, the postulated through-wall crack used in the deterministic fracture mechanics evaluation is based on a detection margin of ten with respect to the leakage from the postulated crack. The Commission agrees that the selection of the margin should be derived from the uncertainties involved. As noted in issue 7 of the final limited scope GDC-4 rule (51 FR 12502, April 11, 1986), the Commission recognizes that the measurement or determination of leakage from a system under pressure involves uncertainties for which margins are needed. Commenters suggesting relaxation in the detection margin cited only limited sources of uncertainty such as material properties and calculated flow rates through a crack. Other sources of uncertainty not mentioned include plugging of the crack with particulate material over time, stresses and number of cycles, and uncertainties associated with personnel and instruments used to detect leakage. For the present, the Commission will retain the leak detection margin of ten unless detailed evidence can be presented for other values. The Commission may require administrative controls to enforce adequate implementation of leakage detection and monitoring. Additionally, the Commission may undertake recurring inspections to verify that leakage detection and monitoring satisfy leak-before-break requirements.

Issue 2: Margins on loads and leakage crack sizes used in the deterministic fracture mechanics evaluation should be relaxed.

Commission Response: The Commission acknowledges that there are many situations where the margin is not required on loads resulting from the design basis piping analyses. However, there are situations where the

uncertainty in the total procedure, including stress analyses and fracture mechanics evaluations, warrants some margin (see issue 7 below). Applicants or licensees must maintain the margin on loads at 1.4, except when the deadweight, thermal expansion, pressure, seismic inertial and seismic anchor motion loads are combined based on individual absolute values. In this case, the margin on loads may be reduced to 1.0. The evaluation of seismic anchor motion loads at SSE conditions may be omitted when these loads are shown to be small at OBE conditions.

The Commission believes that, because of uncertainties associated with flaw geometry and the different analytical procedures, the margin between the leakage crack size and critical crack size stated in the proposed rule should not be reduced below the value of two.

Issue 3: The acceptance criteria should refer to "crack detection" rather than "leakage detection".

Commission Response: The fracture mechanics evaluation outlined in the Commission's acceptance criteria examines a postulated throughwall flaw which may grow under service and earthquake loads. The size of the postulated flaw for fracture mechanics evaluation purposes depends on the ability to detect the presence of the flaw during service with an adequate margin for detection. The standard methods to detect the throughwall flaw during service depend on the magnitude of flow or leakage through the flaw. Therefore, the methodology has to be based upon leakage detection rather than crack detection.

Issue 4: Leak-before-break technology should be extended to relax pipe rupture requirements for containment design, emergency core cooling systems and environmental qualification of electrical and mechanical equipment.

Commission Response: This was addressed as issue 3 in the final limited scope GDC-4 rule (51 FR 12502). The Commission plans to consider whether environmental qualification requirements can be modified based upon leak-before-break technology. The Commission does not intend to consider near-term changes to emergency core cooling system and containment design bases as discussed in the **Final Rule** section of this **SUPPLEMENTARY INFORMATION**.

When leak-before-break technology is applied to dynamic effects design bases, these effects are reduced to zero; there are no replacement dynamic effects postulated. However, environmental qualification design bases cannot be reduced to zero when leak-before-break technology is applied to piping. The postulated pipe rupture has served as a convenient and conservative umbrella covering many sources of environmental

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qualification design bases, such as breaches in the fluid system pressure boundary from failed pump seals, leaking valve packings, flanged connections, bellow, manways, rupture disks and throughwall cracks. Thus, in applying leak-before-break technology to environmental qualification, the Commission faces the task of developing a replacement environmental qualification design basis.

The Commission is not prepared at this time to propose new environmental design criteria for temperature, pressure, humidity and flooding. If it can be shown that it is beneficial to apply leak-before-break technology to environmental qualification, another modification to GDC-4 would be proposed. In the interim, the Commission recognizes that situations may arise where justification can be developed by the industry for alternative equipment qualification requirements. Such justifications, if accepted by the Commission pursuant to the existing exemption process, would allow a limited number of case-by-case relaxations in environmental qualification requirements. The Commission encourages the development of generic alternative equipment qualification design bases by the industry. This could support future amendments to GDC-4 and other affected requirements addressing environmental qualification.

Issue 5: Can minor modifications of piping systems not related to the exclusion of dynamic effects be made without examining impacts on the original leak-before-break evaluation?

Commission Response: The original leak-before-break evaluation must be applicable for the life of the plant. Changes in configuration or operating conditions must be examined to determine impacts on the validity of the original leak-before-break evaluation, particularly as to how stresses are influenced. The Commission believes that many minor modifications, such as changing piping insulation, can be made without affecting the original analysis. However, modifications which are not minor in scope as for example when the number or type of pipe supports are changed extensively, require an evaluation of the applicability of the original leak-before-break analysis.

Issue 6: Leak-before-break should be mandatory for plants which have not yet received their construction permit.

Commission Response: The Commission believes that economic and operational considerations will motivate many utilities to apply leak-before-break technology. While it is estimated that an unquantified reduction in public risk results from this rule, the actual scope of piping contributing to the reduction will vary from plant to plant. The Commission encourages the use of high

quality piping which does not require pipe whip restraints and jet impingement barriers. For any new application, the Commission would permit the applicant to decide whether or not to use leak-before-break technology.

Issue 7: Leak-before-break technology should be applicable to discrete locations. There should be no requirement that leak-before-break technology be applicable only to an entire piping system or analyzable portion thereof.

Commission Response: Standard Review Plan (SRP) Section 3.6.2 of NUREG-0800 has been used for more than a decade to postulate the number and location of pipe ruptures in nuclear power plants. SRP 3.6.2 ignores or treats indirectly many factors, such as material properties, potential corrosion, and the potential for water hammer, which actually determine where and whether pipe rupture will occur. Leak-before-break procedures explicitly treat these factors. The Commission will not commingle SRP 3.6.2 with more advanced leak-before-break methodology. Leak-before-break is intended to be a substitute for SRP 3.6.2 only when all breaks in a fluid system piping are eliminated. This avoids consideration of synergistic effects, that is, the effects of a pipe break at one location on another potential break location.

Additionally, the Commission, through long term and extensive piping research programs, has become aware that differences exist between analytically calculated stresses and actual stresses occurring at discrete locations in piping. The differences between calculated and actual stresses usually stem from difficulties in modeling pipe supports under dynamic and static environments. Leak-before-break will be applied only to an entire fluid system piping or analyzable portion thereof.

Issue 8: Creep should not be an issue in applying leak-before-break technology.

Commission Response: This rule gives guidance for reactors other than light water reactors. Creep can be an issue for gas and metal cooled reactors. Normally, creep damage is not an important concern in light water reactors.

Issue 9: Extensive materials testing requirements should be relaxed. The use of generic materials properties should be permitted.

Commission Response: The ductile piping fracture mechanics analysis techniques that are applied in the leak-before-break assessment are strongly dependent on the material tensile properties and material resistance to crack extension. The material testing requirements are necessary to provide reliable assessments of margins against unstable flaw extension when case-by-

case leak-before-break analyses are performed.

However, if archival materials are not available or if actual plant material properties cannot be defined practically, generic plant specific or industry wide material data bases can be assembled and used to define the required material tensile and toughness properties. To provide an acceptable level of reliability, plant specific generic data bases must be reasonable lower bounds for sets of compatible material tensile and toughness properties associated with actual materials at the plant. Any industry generic data base must be a reasonable lower bound for the population of material tensile and toughness properties associated with any individual material specification (e.g., A106 Grade B), material type (e.g., austenitic steel), or welding procedure. Except as indicated in the Commission response to issue 13, industry generic data bases for the range of piping materials in light water reactors have not been assembled and proposed for leak-before-break analyses. Industry groups are encouraged to assemble and use reliable generic data bases so that analyses and evaluations can be performed efficiently and effectively.

Issue 10: The temperature limitation of 750°F should not be adopted for evaluation of creep damage.

Commission Response: The temperature limitation of 750°F is revised as follows: for ferritic steel piping, the temperature limitation will be 700°F; for austenitic steel piping the temperature limitation will be 800°F. These values more accurately reflect the creep performance of piping and are in accord with the ASME Code. Recent experience in fossil fuel plants operating at temperatures over 1000°F has indicated that creep-related ruptures in large diameter piping may not be low probability events, and suggests deficiencies in creep design standards after a service life of ten years or greater. Until creep behavior after long service intervals is better understood, the Commission will retain the temperature limitations cited above.

Issue 11: Delete the words "reviewed and approved by the Commission" from the text of the rule.

Commission Response: This comment is rejected. Leak-before-break technology is applicable only to high quality piping which is maintained in a high quality condition. Since much of the plant's piping is custom designed, the Commission would have to undertake detailed case-specific review to determine that acceptable standards of quality are achieved and maintained, and that the analyses meet the Commission's requirements. Detailed reviews are especially needed in piping other than PWR primary coolant loops

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to assure that failure mechanisms such as water hammer, corrosion, erosion, fatigue, and creep are not significant contributors to the potential for pipe rupture. Additionally, factors such as leakage detection, material properties and environmental conditions are more variable outside PWR primary coolant loops, and possible misuse of leak-before-break technology can occur, unless careful review and evaluation of these aspects are performed by the Commission. Consequently, the words "reviewed and approved by the Commission" were added specifically to ensure that a careful evaluation enforcing the Commission's rigorous acceptance criteria would be performed for each individual request from licensees and applicants.

The adopted revision of GDC-4 requires NRC review and approval of the analyses on which the elimination of dynamic effects are based. As reflected in the limited scope rule (51 FR 12502), which is replaced by the adopted broad scope rule, the NRC has previously reviewed and approved the application of leak-before-break technology for eliminating design basis dynamic effects of postulated ruptures in PWR primary loop piping. No additional review and approval by the Commission in these cases is required under the adopted broad scope rule for elimination of design basis dynamic effects of postulated ruptures in PWR primary loop piping provided the conditions set forth in the Supplementary Information accompanying the rule (51 FR 12502) are satisfied.

The proposed broad scope amendment (51 FR 26397, July 23, 1986) also stated that "Modifications of the licensed plant design of operating plants may involve an unreviewed safety question under 10 CFR 50.59 * * *. A simple removal of pipe whip restraints and jet impingement barriers would not involve an unreviewed safety question." The meaning of this last sentence is that *after* analysis reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low, *then*, without prior approval, pipe whip restraints and jet impingement barriers may be removed. Pipe whip restraints and jet impingement barriers cannot be removed, however, without conducting an appropriate leak-before-break evaluation, submitting the evaluation for Commission review and obtaining Commission approval. Moreover, removal of a pipe whip restraint which also serves as a seismic restraint would not be a "simple" removal of a pipe whip restraint and, therefore, would involve an unreviewed safety question.

Issue 12. How is the demonstration of extremely low probability made for indirect sources of pipe rupture?

Commission Response: Indirect sources of pipe rupture, as discussed in

the plant FSAR, are investigated by applicants and utilities. These include seismic events and system overpressurizations due to accidents resulting from human error, fires or flooding which cause electrical and mechanical control systems to malfunction. The analysis of indirect sources should also confirm that snubber failure rates are maintained at a low rate. Compliance with the snubber surveillance requirements of the technical specifications can be used to demonstrate that snubber failure rates are low. Missiles from equipment, damage from moving equipment and failures of systems or components in close proximity to the piping are investigated as well. The results of prior analyses conducted to show compliance with Commission regulations can be applicable to potential sources of indirect pipe rupture.

Issue 13. It is recommended that adequate material toughness be demonstrated when limit load analysis is applied and that the margin of three be on the applied force and moment combined rather than just on moment. The limit load analysis procedures in ASME Code, Section XI, Appendix C, Winter 1986 Addenda, should be allowed.

Commission Response: The Commission is revising its requirements on limit load analysis procedures as stated in the proposed amendment to GDC-4 (51 FR 26393). The new requirements do not contain the arbitrary margin of three on applied moment, but instead are based on an experimentally verified ASME approved procedure.

During preparation of NUREG-1061, Volume 3, there was significant uncertainty associated with reliable application of limit load analysis for austenitic steel, especially in the case of submerged arc welds (SAW) and shielded metal arc welds (SMAW). This uncertainty led to restrictions on the use of limit load analysis and application of methods originally used as the basis for IWB-3640 in Section XI of the ASME Code.

Recently, the ASME Code approved revised evaluation procedures for austenitic steel piping (see Appendix C of Section XI); these procedures incorporate methods to account for reduced toughness associated with SAW and SMAW. The Commission has concluded that the evaluation method in Appendix C of Section XI (including the tensile and toughness properties defined for base metal and welds) is acceptable when performing leak-before-break analyses for austenitic steel piping, provided the margins presented in the Commission response to issues 1 and 2 are met. The value of flow stress used with this method will be evaluated by the Commission. Because generic

evaluation procedures and materials properties have not yet been approved for ferritic piping by the ASME Code or the NRC, leak-before-break analysis for ferritic piping will continue case-by-case until approved Code procedures are available.

Issue 14: Leak-before-break should not be limited to high energy piping.

Commission Response: The Commission's rules require postulated pipe ruptures only in high energy piping. There is no reason to apply leak-before-break technology in moderate energy piping because there are no postulated pipe ruptures in such fluid system piping.

Issue 15: Strict adherence to Regulatory Guide 1.45 should not be required outside the containment.

Commission Response: The Commission does not require and did not intend to suggest the need for strict adherence to Regulatory Guide 1.45 outside the containment. The proposed rule stated only that " * * * leakage detection requirements *equivalent* to Regulatory Guide 1.45 must be satisfied for all piping within the scope of this rule." Scheduled operator walkdowns can be used as a means of leak detection outside the containment.

Issue 16: Older operating plants should not be held to the requirement that heavy component supports should meet ASME Code allowables as a condition for applying leak-before-break.

Commission Response: The use of ASME Code allowables for heavy component supports of older operating plants as a condition for applying leak-before-break technology is not required. However, when heavy component supports are redesigned excluding the dynamic effects of pipe rupture, current industry codes (such as the ASME or AISC code) may be required. Additionally, current NRC criteria for calculating seismic loads (coupled with the already existing SSE) may also be required. For example, a simple replacement of high strength fasteners with more ductile fasteners of lower yield strength would not require changes in the industry codes or seismic criteria from that used in the original design. On the other hand, modification of the heavy component supports that involves redesign and removal of snubbers in early vintage plants would require use of current industry codes and NRC seismic criteria. Dynamic effects from pipe ruptures in branch connections must be considered if the branch connections do not qualify for leak-before-break. In heavy component support redesign, improved functional reliability must be demonstrated for any changes made. Structural capacity associated with the original steel and concrete, including struts, columns, pedestals, hangers, trusses and skirts

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cannot be diminished in the support system of operating plants or plants under construction. Redesigns will be limited to replacing high strength fastener material and reducing the number and capacity of snubbers. Applicants and licensees undertaking heavy component support redesign, with dynamic effects of pipe rupture eliminated, should use independent design and fabrication verification procedures to minimize design and construction errors. Displacements and rotations resulting from potential failure of redesigned lateral (horizontal) supports should not lead to the rupture of piping connected to the reactor coolant loop heavy components.

Issue 17: Additional guidance is needed on the acceptability of remedial stress enhancement programs such as induction heating as it pertains to stress, corrosion, cracking, residual stress states and sensitization.

Commission Response: The rule precludes leak-before-break evaluations for systems that have materials that are susceptible to intergranular stress corrosion cracking (IGSCC). The Commission recognizes that remedial residual stress improvement treatments are effective in reducing susceptibility to IGSCC. However, remedial stress improvement treatments of nonconforming materials alone do not provide a sufficient basis to support leak-before-break evaluations in the context of this rule. The Commission would, however, review such evaluations case-by-case if hydrogen water chemistry were used as an adjunctive measure with the remedial stress improvement treatments. Practices with regard to facility water chemistry would be an additional factor considered in the review.

Nonconforming piping with any planar flaws in excess of the standards in IWB 3514.3 of Section XI of the ASME Code would not be permitted to use leak-before-break analyses. However, nonconforming piping that has been treated by two mitigating methods may qualify for leak-before-break if the piping contains no flaws larger than those permitted by IWB 3514.3 of Section XI of the ASME Code. If piping has been repaired by weld overlays, leak-before-break technology cannot be applied.

Issue 18: The fracture mechanics approach should not require that the location of highest stress utilize the poorest material properties.

Commission Response: The proposed rule stated that, in conducting the deterministic fracture mechanics evaluation, investigators would "identify the location(s) at which the

highest stresses coincident with poorest materials properties occur * * *". This sentence should have read "identify the location(s) which have the least favorable combinations of high stress and poor material properties * * *". The Commission did not intend to combine the highest stresses at one location with the poorest material properties of another location. The critical rupture locations depend on stress and material properties, among other things, and investigators may need to examine several locations to decide which is the controlling case.

Issue 19: The decision that leak-before-break technology is not applicable to materials subject to cleavage type fracture should be reconsidered.

Commission Response: This comment is rejected. The Commission will allow leak-before-break technology only to materials which are ductile under the full range of system operating temperatures in order to avoid sudden brittle piping failures.

Issue 20: The clause in the rule requiring Commission review and approval of analyses demonstrating piping integrity will preclude litigation over the scope of piping affected and the adequacy of the analyses. This would amount to a *de facto* illegal removal of a material issue from an operating license amendment proceeding.

Commission Response: The commenter cites in support of this proposition *Cleveland Electric Illuminating Company* (Perry Nuclear Power Plants, Units 1 and 2), ALAB-841, (July 25, 1986), reconsideration denied ALAB-844, (August 18, 1986). The Licensing Board case affirmed in ALAB-841 is *Cleveland Electric Illuminating Company* (Perry Nuclear Power Plant, Units 1 and 2), LBP-85-35, 22 NRC 514 (1985).

A careful reading of these cases shows that they do not stand for the commenter's proposition. At issue was the scope and adequacy of the applicant's preliminary hydrogen control analysis required by 10 CFR 50.44(c)(3). One of the criteria for this analysis is that it "use accident scenarios that are accepted by the NRC staff." (50.46(c)(vi)(B)(3)) The Licensing Board did not hold that the staff's approval of the applicant's analysis was binding and thus precluded a challenge to the scope and adequacy of the analysis. Rather, the Board permitted such a challenge on a number of issues. 22 NRC at 533-548. However, the Board did not allow the intervenor to raise other issues under this contention which went beyond the scope of the hydrogen control rule itself.

22 NRC at 548-549. The Board's views on these matters were upheld on appeal.

A direct application of this case to the GDC-4 context shows that the commenter's conclusion is incorrect. The staff's acceptance of a GDC-4 analysis will not preclude litigation of either the scope of piping included or the adequacy of the analysis itself. However, a challenge on either basis must be confined to the overall scope of GDC-4 and could not be used as a collateral challenge to other parts of the regulations or to argue that the rule itself is inadequate. Challenges of this type must be brought pursuant to 10 CFR 2.758.

The staff's review and approval of the piping integrity analyses is an indispensable part of the implementation of the leak-before-break concept. Without such review (for piping other than the PWR primary loop), the staff has no means to assure itself that the acceptance criteria have been properly applied. The comment is therefore rejected.

Issue 21: The reallocation of resources within the NRC to review piping integrity analyses submitted under the amendment is barred by the Atomic Energy Act, which requires that public safety take precedence over cost savings to licensees.

Commission Response: The Regulatory Analysis performed to support this rulemaking shows that there is a net safety benefit to be realized from proper application of leak-before-break technology. The Commission has undertaken the rulemaking for that purpose. The positive results in terms of simplicity of the plant, ease of inspection, avoidance of improper removal and reinstallation of unneeded supports and restraints, and the reduction of personnel exposures have been shown to vastly outweigh any additional risk associated with removing supports and restraints. Therefore, reallocation of NRC resources to ensure that NRC acceptance criteria are rigorously adhered to is fully justified in terms of public safety.

In addition to these issues, the Commission deleted the fatigue crack growth analysis specified in the proposed rule. This requirement was found to be unnecessary because it was bounded by the crack stability analysis.

Having considered all of the above, the Commission has determined that a final rule be promulgated

VII. Availability of Documents

1. Copies of NUREG-1061, Volume 3, may be purchased from the

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Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC, 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for public inspection and/or copying at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

2. Copies of the ASME Boiler and Pressure Vessel Code may be obtained from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY, 10017.

3. Copies of Regulatory Guide 1.45 entitled "Reactor Coolant Pressure Boundary Leakage Detection Systems" may be obtained by writing to the Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC, 20555.

VIII. Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule if adopted, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. Although certain plant hardware might be removed from the plant, consistent with this rule, the removal would not alter the environmental impact of the licensed activities as set out in the Final Environmental Impact Statement for each facility. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 1717 H Street, NW., Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from John A. O'Brien, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-7854.

IX. Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing information collection requirements under 10 CFR Part 50 were approved by the Office of Management and Budget approval number 3150-0011.

X. Regulatory and Backfit Analyses

The regulatory analysis is available for inspection in the NRC Public

Document Room, 1717 H Street NW, Washington, DC. Single copies of the analysis may be obtained from John A. O'Brien, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-7854. A backfit analysis under 10 CFR 50.109 for the purpose of completeness was published in the proposed broad scope GDC-4 modification (51 FR 26393), although it was not required because the rule will not require licensees or applicants to make any changes. The Commission's primary justification for this rulemaking rests on its statutory responsibility to ensure an adequate level of protection of the public health and safety. Economic advantages or disadvantages resulting from this action did not affect such responsibilities. The Commission remains mindful of its statutory responsibilities pursuant to *Union of Concerned Scientists et al. v. NRC*, DDC No. 85-1757, August 4, 1987. The Commission has prepared, however, a regulatory analysis to set forth clearly the costs and benefits of the impacts of this rule and the examined alternatives.

XI. Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980, (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definitions of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

Final Rule

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 50.

52 FR 42078
Published 11/3/87
Effective 12/3/87

10 CFR Part 50

Evaluation of the Adequacy of Off-Site Emergency Planning for Nuclear Power Plants at the Operating License Review Stage Where State and/or Local Governments Decline To Participate in Off-Site Emergency Planning

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its rules to provide criteria for the evaluation at the operating license review stage of utility-prepared emergency plans in situations in which state and/or local governments decline to participate further in emergency planning. The rule is consistent with the approach adopted by Congress in section 109 of the NRC Authorization Act of 1980, Pub. L. 96-295, described in the Conference Report on that statute (H.96-1070, June 4, 1980), twice re-enacted by the Congress (in Pub. L. 97-415, Jan. 4, 1983, and Pub. L. 98-553, Oct. 30, 1984), and followed in a prior adjudicatory decision of the Commission, *Long Island Lighting Co.*, (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22 (1986). The rule recognizes that though state and local participation in emergency planning is highly desirable, and indeed is essential for maximum effectiveness of emergency planning and preparedness, Congress did not intend that the absence of such participation should preclude licensing of substantially completed nuclear power plants where there is a utility-prepared emergency plan that provides reasonable assurance of adequate protection to the public.

EFFECTIVE DATE: December 3, 1987.

FOR FURTHER INFORMATION CONTACT:

Peter G. Crane, Office of the General Counsel, USNRC, Washington, DC 20555, 202-634-1465

Michael T. Jamgochian, Office of Nuclear Regulatory Research, USNRC, Washington, DC 20555, 301-443-7657.

David B. Matthews, Office of Nuclear Reactor Regulation, USNRC, Washington, DC 20555, 301-492-9647.

SUPPLEMENTARY INFORMATION:

Discussion

On March 6, 1987, the NRC published its notice of proposed rulemaking in the Federal Register, at 52 FR 6980. The period for public comment (60 days,

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subsequently extended for an additional 30 days) expired on June 4, 1987.

The proposed rule drew an unprecedentedly large number of comments. Some 11,500, individual letters were sent to NRC, as well as 27,000 individually signed form letters sent to Congress or the White House and forwarded to NRC. Approximately 16,300 persons signed petitions to the NRC. Every comment was read, including form letters, which were examined one by one so that any individual messages added by the signatories could be taken into account. NRC attempted to send cards of acknowledgment to each commenter.

The sheer volume of the comments received makes it clearly impracticable to discuss them individually. As a result, the following discussion will focus on the principal issues raised in the comments.

Issue #1. Is the proposed rule legal? Specifically, is it in accord with the language and legislative history of the emergency planning provisions enacted by the Congress in 1980?

Answer: Yes. The intent of the proposed rule, as clarified in Commission testimony and in other responses to the Congress, is to give effect to the Congress's 1980 compromise approach to emergency planning, not go beyond it. To explain this requires a somewhat detailed discussion of the background of the actions taken in 1980 by Congress and by the Commission with regard to emergency planning.

The backdrop for the actions taken by the Congress and the Commission in 1980 was, of course, the 1979 accident at Three Mile Island. The accident changed the NRC's regulatory approach to radiological emergency planning. Before the accident, emergency planning received relatively little attention from nuclear regulators. The prevailing assumption was that engineered safety features in nuclear power plants, coupled with sound operation and management, made it unlikely that emergency planning would ever be needed. At that time, only a limited evaluation of offsite emergency planning issues took place in the pre-construction review of applications to build nuclear power plants. The Three Mile Island accident led to the widespread recognition that, while there is no substitute for a well built, well run, and well regulated nuclear power plant, a substantial upgrading of the role of emergency planning was necessary if the public health and safety were to be adequately protected.

The Commission issued an advance notice of proposed rulemaking in July 1979, and in September and December of the same year it issued proposed emergency planning rules. 44 FR 54308 (September 19, 1979); 44 FR 75167

(December 19, 1979). Before the Commission took final action on the rules, however, the Congress took action, writing emergency planning provisions into the NRC Authorization Act for fiscal year 1980, Pub. L. No. 96-295. It is extremely important to focus on what the Congress did in that Act, because Congress' actions were the starting point for all the NRC did subsequently in the emergency planning area, as the written record makes clear.

Section 109 of the NRC Authorization Act directed the Commission to establish regulations making the existence of an adequate emergency plan a prerequisite for issuance of an operating license to a nuclear facility. The NRC was further directed to promulgate standards for state radiological response plans.

In the same section of the 1980 Act, Congress specified the conditions under which the Commission could issue operating licenses, and in doing so, it made clear its preferences with regard to state and local participation. Its first preference, reflected in section 109(b)(1)(B)(i)(I), is for a "State or local radiological emergency response plan which provides for responding to any radiological emergency at the facility concerned and which complies with the Commission's standards for such plans." In section 109(b)(1)(B)(i)(II), however, the Congress set out a second option: "In the absence of a plan which satisfies the requirements of subclause (I), there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned." (Emphasis added.) In addition, section 109 provided that the Commission's determination under the first but not the second of the two options could be made "only in consultation with the Director of the Federal Emergency Management Agency and other appropriate agencies." Section 109(b)(1)(B)(ii). The statute further directed the Commission to "establish by rule . . . a mechanism to encourage and assist States to comply as expeditiously as practicable" with the NRC's standards for State radiological emergency response plans. Section 109(b)(1)(C).

The Conference Report on the legislation, H. 96-1070 (June 4, 1980) explained in clear terms, at p. 27, the rationale for the two-tiered approach: "The conferees sought to avoid penalizing an applicant for an operating license if a State or locality does not submit an emergency response plan to the NRC for review or if the submitted plan does not satisfy all the guidelines or rules. In the absence of a State or local plan that complies with the guidelines or rules, the compromise permits NRC to issue an operating license if it determines that a State, local

or utility plan, such as the emergency preparedness plan submitted by the applicant, provides reasonable assurance that the public health and safety is not endangered by operation of the facility." (Emphasis added.)

The statute, which was enacted on June 30, 1980, and the Conference Report make abundantly clear that in Congress' view, the ideal situation was one in which there is a state or local plan that meets all NRC standards. It is generally clear that in Congress' view, there could be emergency planning under a utility plan that to some degree fell short of the ideal but was nevertheless adequate to protect the health and safety of the public.

That Congressional judgment was before the Commission when it considered final emergency planning rules only a few weeks later, and the Commission took pains to make clear on the record that it was following the Congress' approach. As the Commission stated in its notice of final rulemaking, published on August 19, 1980, at 45 FR 55402:

Finally, on July 23, 1980, at the final Commission consideration of these rules, the Commission was briefed by the General Counsel on the substance of conversations with Congressional staff members who were involved with the passage of the NRC Authorization Act for fiscal year 1980, Pub. L. No. 96-295. The General Counsel advised the Commission that the NRC final rules were consistent with that Act. The Commission has relied on all of the above information in its consideration of these final rules. In addition, the Commission directs that the transcripts of these meetings shall be part of the administrative record in this rulemaking.

In addition, in a key portion of the rule, dealing with the question of whether NRC should automatically shut down nuclear plants in the absence of an NRC-approved state or local emergency plan, or should instead evaluate all the relevant circumstances before deciding on remedial action, the NRC again explicitly followed the Congress' lead. In determining what action to take, the Commission said, it would look at the significance of deficiencies in emergency planning, the availability of compensating measures, and any compelling reasons arguing in favor of continued operation. 10 CFR 50.47(c). The Commission explained: "This interpretation is consistent with the provisions of the NRC Authorization Act for fiscal year 1980, Pub. L. 96-295." 45 FR 55403. Thus in deciding that the lack of an approved state or local plan should not be grounds for automatic shutdown of a nuclear power plant, the Commission expressly declared itself to be following the statutory approach.

This background sheds considerable light on a passage from the Federal Register notice which some commenters saw as indication that the Commission consciously decided in 1980 that states

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and localities should have the power to exercise a veto over nuclear power plant operation. The Commission said:

The Commission recognizes that there is a possibility that the operation of some reactors may be affected by this rule through inaction of State and local governments or an inability to comply with these rules. The Commission believes that the potential restriction of plant operation by State and local officials is not significantly different in kind and effect from the means already available to prohibit reactor operation. . . . Relative to applying this rule in actual practice, however, the Commission need not shut down a facility until all factors have been thoroughly examined.

45 FR 55404. (Emphasis added.)

It has been argued that the language just quoted indicates that the Commission made a conscious decision in 1980 to allow states and localities to exercise a veto power over completed nuclear power plants. Seen in context, however, it is apparent that the Commission did no such thing. Rather, the Commission was acknowledging the fact that under the approach it was taking, the action (or inaction) of a state or locality had the potential to affect the operation of nuclear power plants, since state and local non-participation would clearly make it more difficult for an applicant to demonstrate the adequacy of emergency planning. It is worth emphasizing the word "potential" in the quoted passage. It indicates that the Commission believed that in some cases, state and local action or inaction might have the effect of restricting plant operation, while in other cases it would not. In other words, the Commission foresaw a case-by-case evaluation, with the result not foreordained either in the direction of plant operation or of shutdown. Clearly, neither the Commission nor the Congress envisioned that state or local non-participation should automatically bar plant operation without further inquiry.

The mechanism adopted by the Commission for implementing the two-tiered approach was set forth in 10 CFR 50.47 of the Commission's regulations. For the first tier, sixteen planning standards for a state or local emergency plan were spelled out in 10 CFR 50.47(b)(1-16) of the Commission's regulations. The second tier, by contrast, was dealt with in a brief and unspecific provision, 10 CFR 50.47(c)(1):

Failure to meet the [16] applicable standards set forth in paragraph (b) of this section may result in the Commission declining to issue an operating license; however, the applicant will have an opportunity to demonstrate to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation.

In a 1986 decision, the Commission declared that in a situation in which

state and local authorities decline to participate in emergency planning, the NRC has the authority and the legal obligation to consider a utility plan and render a judgment on the adequacy of emergency planning and preparedness. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22. The Commission observed in *LILCO* that the emergency planning standards of 10 CFR 50.47(b)—the regulation which establishes the 16 planning standards by which a state and local plan is to be measured—"are premised on a high level of coordination between the utility and State and local governments," so that "[i]t should come as no surprise that without governmental cooperation [the utility] has encountered great difficulty complying with all of these detailed planning standards." 22 NRC 22, 29. The Commission noted, however, that its emergency planning rules were intended to be "flexible," and that a utility plan will pass muster under 10 CFR 50.47(c) "notwithstanding noncompliance with the NRC's detailed planning standards . . . (1) if the defects are 'not significant'; (2) if there are 'adequate interim compensating actions'; or (3) if there are 'other compelling reasons.'" The Commission added: "The decisions below focus on (1) and (2) and we do likewise."

The Commission then explained that the "measure of significance under (1) and adequacy under (2) is the fundamental emergency planning standard of § 50.47(a) that 'no operating license . . . will be issued unless a finding is made by NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.'" The "root question," the Commission said, was whether a utility plan "can provide for 'adequate protective measures . . . in the event of a radiological emergency.'" To answer that question, the Commission continued, requires recognition of the fact that emergency planning requirements do not have fixed criteria, such as prescribed evacuation times or radiation dose savings, but rather aim at "reasonable and feasible dose reduction under the circumstances." 24 NRC 22, 30.

Thus the Commission is already on record as believing itself legally obligated to consider the adequacy of a utility plan in a situation of state and/or local non-participation in emergency planning. Likewise, it is on record as believing that the evaluation of a utility plan takes place in the context of the overriding obligation that no license can be issued unless the emergency plan is found to provide reasonable assurance of adequate protective measures in an emergency. The Commission believes that the planning standards of 10 CFR 50.47(b), which are used to evaluate a state or local plan, also provide an

appropriate framework to evaluate a utility plan. Therefore, the new rule provides for the first time that where a utility plan is submitted, in a situation of state and/or local non-participation in emergency planning, it will be evaluated for adequacy against the same standards used to evaluate a state or local plan. However, due allowance will be made both for the non-participation of the state and/or local governmental authorities and for the compensatory measures proposed by the utility in reaching a determination whether there is "reasonable assurance that adequate protective measures can and will be taken."

To sum up, therefore, the rule is in accord with legal requirements for emergency planning at nuclear power plants because:

- The rule is consistent with section 109 of the NRC Authorization Act of 1980, a measure which has twice reenacted by the Congress, though it has since expired. In addition, the House of Representatives recently rejected an amendment designed to bar implementation of the rule for two specific plants.
- The rule is consistent with existing NRC regulations, and is well within NRC's rulemaking authority.
- Since the rule provides for no diminution of public protection from what was provided under existing regulations, it cannot be in contravention of any statutory requirements governing the level of NRC safety standards.

Issue #2: Is this a generic rule, or is this proposal really aimed at the Shoreham and Seabrook plants?

The rule is generic in the sense that it is of general applicability and future effect, covering future plants as well as existing plants. At present, however, there are only two plants with pending operating license applications for which state and/or local non-participation is an issue. Those plants are Shoreham and Seabrook. The NRC's 1980 rules, perhaps because of optimism that states and localities would always choose to be partners in emergency planning, included only a general provision, 10 CFR 50.47(c), dealing with cases in which utilities are unable to satisfy the standards for state and local emergency plans, and had no specific discussion of the evaluation of a utility plan in cases of state or local non-participation. This does not mean that the NRC was compelled to adopt new regulations in order to act on the Shoreham and Seabrook license applications. On the contrary, the NRC has always had the option of proceeding by case-by-case adjudication under its 1980 regulations.

Issue #3: Will this rule assure licenses to the Shoreham and Seabrook plants?

It will not assure a license to any particular plant or plants. It will establish a framework in which a utility

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seeking an operating license can, in a case of state and/or local non-participation, attempt to demonstrate to the NRC that emergency planning is adequate. Whether a utility could succeed in making that showing would depend on the record developed in a specific adjudication, the results of which would be subject to multiple levels of review within the Commission as well as to review in the courts.

Issue #4: Is state or local participation essential for the NRC to determine that there will be adequate protection of the public health and safety?

We do not have a basis at this time for determining generically whether state and local participation in emergency planning is essential for NRC to determine that there will be adequate protection of the public health and safety. There has yet to be a final adjudicatory determination in any proceeding on the adequacy of a utility plan where state and local governmental authorities decline to participate in emergency planning. Clearly, it will be more difficult for a utility to satisfy the NRC of the adequacy of its plan in the absence of state and local participation, but whether it would be impossible remains to be seen. The fact that Congress provided for evaluation of a utility plan in section 109 of the NRC Authorization Act of 1980 (and in two subsequent Authorization Acts) indicates that Congress believed that it was at least possible in some cases for a utility plan to be found to provide "reasonable assurance that public health and safety is not endangered by operation of the facility concerned," in the words of the "second tier" provided in section 109.

Issue #5: Is emergency planning as important to safety as proper plant design and operation?

First of all, this issue does not have to be addressed in the context of the final rule announced in this notice, since the present rule involves no redrawing by NRC of the balance between emergency planning and other provisions for the protection of health and safety. Having said that, we turn to the question of the place of emergency planning in the overall regulatory scheme for the protection of public health and safety.

Though the Commission in its 1980 rulemaking explicitly described emergency planning as "essential," it is less clear what importance the Commission assigned to emergency planning, as compared to the importance accorded to other means of protecting public health and safety, notably sound siting, design, and operation. In the Supplementary Information explaining the 1980 rulemaking, the Commission stated that "adequate emergency preparedness is an *essential* aspect in the protection of the public health and safety," 55 FR 55404, and commented that "onsite and offsite emergency preparedness as well as proper siting

and engineered design features are *needed* to protect the health and safety of the public." (Emphasis added.) 45 FR 55403. The Commission also explained that in light of the Three Mile Island accident it had become "clear that the protection provided by siting and engineered design features must be bolstered by the ability to take protective measures during the course of an accident." *Id.* Though the word "bolstered" suggests that the Commission of 1980 viewed emergency planning as a backstop for other means of public protection rather than as of equal importance to them, the issue cannot be resolved definitively by microscopic analysis of the particular words chosen in 1980.

More relevant to the task of ascertaining the intent of the 1980 rulemaking is the regulatory structure established under the 1980 rules. In 10 CFR 50.54(s)(2)(ii), the Commission provided that if it "finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency . . . and if the deficiencies . . . are not corrected within four months of that finding, the Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate." In other words, a plant ordinarily may operate for at least four months with deficiencies in emergency planning before the NRC is required even to decide whether remedial action should be taken. This approach, the Commission said in the Supplementary Information to the 1980 rule, was consistent with section 109 of the NRC Authorization Act of 1980, 45 FR 55407. At the time that the Commission created the so-called "120-day clock" for deficiencies in emergency planning, it was settled Commission law (and remains so today) that the NRC must issue an order directing a licensee to show cause why its license should not be modified, revoked or suspended whenever it concludes that "substantial health or safety issues ha[ve] been raised" about the activities authorized by the license. *Consolidated Edison Company of New York* (Indian Point, Units No. 1, 2 and 3), CLJ-75-8, 2 NRC 173, 178. That standard was endorsed by the Court of Appeals for the District of Columbia Circuit in *Porter County Chapter of the Izaak Walton League v. NRC*, 606 F.2d 1363 (1978). In the context of that standard, the 120-day clock provision for emergency planning deficiencies amounts to a Commission finding that, at least for the first 120 days, even a major deficiency in emergency planning does not automatically raise a "substantial health or safety issue" with regard to plant operation. By contrast, a major safety deficiency relating to emergency

conditions—for example, the availability of the emergency core cooling system—would warrant immediate shutdown.

In sum, despite language indicating that emergency planning was "essential," the Commission in 1980 created a regulatory structure in which emergency planning was treated somewhat differently, in terms of the corrective actions to be taken when deficiencies are identified, from the engineered safety features ("hardware") that would be relied on in an emergency.

Issue #6: Assuming that NRC should consider a utility plan, what criteria should apply? In particular:

(a) Should the utility plan provide just as much protection as a state or local plan, or may less protection be adequate?

(b) If less protection may be adequate, must NRC still find reasonable assurance that under the utility plan, adequate protective measures can and will be taken? Or is it sufficient for NRC to find that the totality of the risk, including all relevant factors, including the likelihood of an accident, assures that there is adequate protection of public health and safety?

Under the rule adopted in this notice, a utility plan, to pass muster, is required to provide reasonable assurance that adequate protective measures can and will be taken in an emergency. The rule recognizes—as did Congress when it enacted and re-enacted the provisions of Section 109 of the NRC Authorization Act of 1980—that no utility plan is likely to be able to provide the same degree of public protection that would obtain under ideal conditions, i.e. a state or local plan with full state and local participation, but that it *may* nevertheless be adequate. The rule starts from the premise that accidents can happen, and that at every plant, adequate emergency planning measures are needed to protect the public in the event an accident occurs. Whether in fact a particular utility plan will be found adequate would be a matter for adjudication in individual licensing proceedings.

Issue #7: May NRC assume that a state or local government which refuses to cooperate in emergency planning will still respond to the best of its ability in an actual emergency? If so:

(a) May NRC assume that the state or local response will be in accord with the utility plan?

(b) May NRC assume that the state or local response will be adequate?

(c) If the NRC rule calls for reliance on FEMA, and FEMA says that it can't judge emergency planning except when there is state and local participation in an exercise, how can the NRC ever make a judgment on emergency planning in a situation in which state and local authorities do not participate?

In this rule, the Commission adheres to the "realism doctrine," enunciated in

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its 1986 decision in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, which holds that in an actual emergency, state and local governmental authorities will act to protect their citizenry, and that it is appropriate for the NRC to take account of that self-evident fact in evaluating the adequacy of a utility's emergency plan. The NRC's realism doctrine is grounded squarely in common sense. As the Commission stated in *LILCO*, even where state and local officials "deny they ever would or could cooperate with [a utility] either before or even during an accident," the NRC "simply cannot accept these statements at face value." 24 NRC 22, 29 fn. 9. It would be irrational for anyone to suppose that in a real radiological emergency, state and local public officials would refuse to do what they have always done in the event of emergencies of all kinds: do their best to help protect the affected public.

The *Long Island Lighting Co.* decision included the observation that in an accident, the "best effort" of state and county officials would include utilizing the utility's plan as "the best source for emergency planning information and options." 24 NRC 22, 31. This rule leaves it to the Licensing Board to judge what form the "best efforts" of state and local officials would take. However, the rulemaking record strongly supports the proposition that state and local governments believe that a planned response is preferable to an ad hoc one. Therefore it is only reasonable to suppose that in the event of a radiological emergency, state and local officials, in the absence of a state or local radiological emergency plan approved by state and local governments, will either look to the utility and its plan for guidance or will follow some other plan that exists. Thus the presiding Licensing Board may presume that state and local governmental authorities will look to the utility for guidance and generally follow its plan in an actual emergency; however, this presumption may be rebutted by, for example, a good faith and a timely proffer of an adequate and feasible state or local radiological response plan which would in fact be relied upon in an emergency. The presiding Licensing Board should not hesitate to reject any claim that state and local officials will refuse to act to safeguard the health and safety of the public in the event of an actual emergency. In actual emergencies, state, local, and federal officials have invariably done their utmost to protect the citizenry, as two hundred years of American history amply demonstrated.

At the present time, the Commission does not have a basis in its adjudicatory experience to judge either that a utility

plan would be adequate in every case or that it would be inadequate in every case. Implementation of this rule may ultimately provide that informational basis.

The problem of how the NRC can decide the adequacy of emergency planning in the face of FEMA's declared reluctance to make judgments on emergency planning in cases of state and local non-participation does not appear insoluble. Though FEMA has expressed its reluctance to make judgments in such circumstances, because of the degree of conjecture that would in FEMA's view be called for, we do not interpret its position as one of refusal to apply its expertise to the evaluation of a utility plan. For FEMA to engage in the evaluation of a utility plan would necessitate no retreat from its stated view that it is highly desirable to have, for each nuclear power plant, a state or local plan with full state and local participation in emergency planning, including emergency exercises. (The Commission shares that view.) FEMA's advice would undoubtedly include identification of areas in which judgments are necessarily conjectural, and NRC's overall judgment on whether a utility's plan is adequate would in turn have to take account of the uncertainties included in FEMA's judgment. Beyond a certain point, uncertainty as to underlying facts would plainly make a positive finding on "reasonable assurance" increasingly difficult. These are issues, however, which can be addressed in the case-by-case adjudications on individual fact-specific situations. It should be noted that while the rule makes clear that ultimate decisional authority resides with NRC, it does envision a role for FEMA in the evaluation of utility plans, although section 109 of the NRC Authorization Act of 1980 did not specify any role for FEMA in the evaluation of utility plans (as opposed to state and local plans).

Issue #8: If this is a national policy question, why doesn't the Commission leave the issue to the Congress to resolve?

Congress did address, in 1980, the issue of what should be done in the event there is no acceptable state or local emergency plan: it directed the NRC to evaluate a state, local, or utility plan to determine whether it provided "reasonable assurance that public health and safety is not endangered by operation of the facility concerned." Perhaps because it was overly optimistic that there would be an acceptable state or local plan in every case, the Commission did not, except in general terms (at 10 CFR 50.47(c)), provide in its regulations for the evaluation of a utility plan. The present rule is an effort to make up for that omission by

incorporating provisions implementing the Congress's 1980 policy decision into the NRC's rules. As noted elsewhere, the 1980 statute, twice re-enacted, has expired, but the NRC does not need the specific authority of that statute to adopt this rule, which is promulgated pursuant to the NRC's general authority, under section 161(b) and other provisions of the Atomic Energy Act, to regulate the use of nuclear energy.

The House of Representatives, as has been described above, voted 261-160 on August 5, 1987 to reject an amendment which would have barred the application of this rule to two specific plants. The Congress is thus well aware of the Commission's emergency planning rulemaking.

For the Commission to terminate its rulemaking and ask the Congress to address the policy issues involved thus seems unwarranted at this time. The Commission is still well within the framework of the guidance which the Congress gave it in 1980 (and in the two re-enactments of the statute) and also well within its rulemaking authority. It has yet to carry through that guidance to the point of making an adjudicatory decision on the adequacy of a utility plan. If and when the Commission determines, through adjudications in individual cases, that there is a continuing problem which only Congressional action can solve, it can so notify the Congress, but that point has not yet been reached.

Issue #9: Doesn't the proposed rule still leave open the possibility that state or local action or inaction can have the effect of blocking operation of a plant? If so, how can the proposed rule be said to effectuate the Congressional intent that licensees not be penalized for the inaction or inadequate action of state and local authorities?

Yes, the proposed rule does leave open the possibility that state or local non-participation can indirectly block the operation of a nuclear plant. This is so because under the particular facts of an individual case it may be impossible for the NRC to conclude that a utility plan is adequate, as defined in this rule. That does not mean, however, that the Congress's intent, as expressed in the 1980 statute and its re-enactments, is thereby frustrated. The Congress was concerned that utilities not be "penalized," but not to the extent that it was willing to countenance operation of a nuclear power plant in a situation where the public was not adequately protected. Congress intended to give a utility the opportunity to demonstrate that its plan provided "reasonable assurance," but it also provided that the NRC could not permit a plant to operate unless it found that the utility had met that burden.

Issue #10: Will the proposed rule discourage cooperation between

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licensees and state and local governments in emergency planning?

There is no reason to believe that the rule would discourage cooperation between licensees and state and local governments in emergency planning. Realistically, the only way in which the rule could discourage such cooperation would be if utilities were to decide that because of the new rule, they had less of an incentive to be accommodating to the needs and desires of state and local authorities. That might be a possible result if it appeared that the new rule make it easy and fast for a utility to obtain approval for its plan in cases of state and local non-participation.

In reality, it is likely to be much more difficult and time-consuming for a utility to obtain approval of its plan in the face of state and local opposition. The problems highlighted by this rulemaking are likely, if anything, to impress utilities anew with the desirability of doing everything necessary to obtain and retain full state and local participation in emergency planning.

Issue #11: Is the proposed rule based on an NRC consideration of economic costs?

The NRC rule is an effort to bring the NRC's regulations more clearly into line with a policy decision made by the Congress in 1980. The NRC's rule is thus based on economic considerations only to the extent that the Congress's policy decision of 1980 was based on economic considerations. In the Conference Report on the NRC Authorization Act of 1980 (H.98-1070, June 4, 1980), the conferees stated that they did not wish utilities to be "penalized" in situations in which there was no acceptable state or local plan. That could be taken as a reference to economic costs or simply to considerations of fairness, in that the issue was whether a utility was to be barred from operating a plant by the actions of third parties over which it had no control.

The NRC's motivation in promulgating this rule is not economics. Its motivation is to assure that the NRC is in a position to make the decisions that Congress intended that it make, and that the Commission has declared that it would make.

Issue #12: Is the proposed rule intended to read states and localities out of the emergency planning process?

Emphatically not. The rule leaves the existing regulatory structure unchanged for cases in which state and local authorities elect to participate in emergency planning. The NRC, in common with the Congress and FEMA, regards full state and local participation in emergency planning to be necessary for optimal emergency planning. The rule change is directed to the question of what the NRC's regulatory approach should be in which states and localities decide to take *themselves* out of the

emergency planning process. Ideally, in the NRC's view, the new rule would never have to be used, because states and localities would never refuse to participate in emergency planning.

Issue #13: Does the proposed rule alter the place of emergency planning in the overall safety finding that the Commission must make?

It does not. As described above, the Commission must make both a finding of "adequate protective measures . . . in an emergency" and an overall safety finding of "reasonable assurance that the health and safety of the public will not be endangered" (10 CFR 50.35(c), implementing section 182 of the Atomic Energy Act, 42 U.S.C. 2232). The rule does nothing to alter either the requirement that emergency planning must be found adequate or the place of emergency planning in the overall safety finding.

Issue #14: What effect if any does the proposed rule have on nuclear plants that are already in operation?

The rule does not specifically apply to plants that already have operating licenses. As described above, 10 CFR 50.54(s)(2)(ii) of the Commission's regulations already provides a mechanism (the "120-day clock") for addressing situations in which deficiencies are identified in emergency planning at operating plants. To the extent that this rule provides criteria by which a utility plan would be judged by state and local withdrawal from participation in emergency planning, those criteria would presumably be of assistance to decisionmakers in determining, under 10 CFR 50.54(s)(2)(ii), whether remedial action should be taken, and if so, what kind, where deficiencies in emergency planning remain uncorrected after 120 days.

Issue #15: Does the Commission's rule mean that the NRC does not have to find that a utility plan would offer protection equivalent to what a plan with full state and local participation would provide?

As stated previously, under the rule adopted in this notice, a utility plan, to pass muster, is required to provide reasonable assurance that adequate protective measures can and will be taken in emergency. The rule recognizes—as did Congress when it enacted and re-enacted the provisions of Section 109 of the NRC Authorization Act of 1980—that no utility plan is likely to be able to provide the same degree of public protection that would obtain under ideal conditions, i.e. a state or local plan with full state and local participation, but that it may nevertheless be adequate.

The Commission's rule, as modified and clarified, would establish a process by which a utility plan can be evaluated against the same standards that are used to evaluate a state or local plan

(with allowances made both for those areas in which compliance is infeasible because of governmental non-participation and for the compensatory measures proposed by the utility). It must be recognized that emergency planning rules are necessarily flexible. Other than "adequacy," there is no uniform "passing grade" for emergency plans, whether they are prepared by a state, a locality, or a utility. Rather, there is a case-by-case evaluation of whether the plan meets the standard of "adequate protective measures . . . in the event of an emergency." Likewise, the acceptability of a plan for one plant is not measured against plans for other nuclear plants. The Commission, in its 1986 *LILCO* decision, stressed the need for flexibility in the evaluation of emergency plans. In that decision, the Commission observed that it "might look favorably" on a utility plan "if there was reasonable assurance that it was capable of achieving dose reductions in the event of an accident that are generally comparable to what might be accomplished with government cooperation." 24 NRC 22, 30. We do not read that decision as requiring a finding of the precise dose reductions that would be accomplished either by the utility's plan or by a hypothetical plan that had full state and local participation: such findings are never a requirement in the evaluation of emergency plans. The final rule makes clear that every emergency plan is to be evaluated for adequacy on its own merits, without reference to the specific dose reductions which might be accomplished under the plan or to the capabilities of any other plan. It further makes clear that a finding of adequacy for any plan is to be considered generally comparable to a finding of adequacy for any other plan.

The rule change is designed to establish procedures and criteria governing the case-by-case adjudicatory evaluation, at the operating license review stage, of the adequacy of emergency planning in situations in which state and/or local authorities decline to participate further in emergency planning. It is not intended to assure the licensing of any particular plant or plants. The rule is intended to remedy the omission of specific procedures for the evaluation of a utility plan from the NRC's existing rules, adopted in 1980. In providing for the evaluation of a utility plan, however, the rule represents no departure from the approach envisioned in 1980 by the Congress and by the Commission. In 1980, the supplementary information to NRC's final rule stated that the rule was consistent with the approach taken by Congress in Section 109 of the NRC Authorization Act of 1980 (which, in a compromise between House and Senate

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versions, provided for the NRC to evaluate a utility's emergency plan in situations where a state or local plan was either nonexistent or inadequate), though the rule itself included no explicit provisions governing the NRC's evaluation of a utility plan in such circumstances. It should be emphasized that the rule is not intended to diminish public protection from the levels previously established by the Congress or the Commission's rules, since the Commission's rules and the Congress have since 1980 provided for a two-tier approach to emergency planning. The rule takes as its starting point the Congressional policy decision reflected in section 109 of the NRC Authorization Act of 1980. That statute adopted a two-tier approach to emergency planning. The preferred approach was for operating licenses to be issued upon a finding that there is a "State or local radiological emergency response plan * * * which complies with the Commission's standards for such plans," but failing that, it also permitted licensing on a showing that there is a "State, local, or utility plan which provides reasonable assurance that the public health and safety is not endangered by operation of the facility concerned."

Under the Commission's 1980 rules, the regulatory provision that implemented the second of the two tiers of Section 109 was general and unspecific. The relevant regulation, 10 CFR 50.47(c), allowed a nuclear power plant to be licensed to operate, notwithstanding its failure to comply with the planning standard of 10 CFR 50.47(b), on a showing that "deficiencies in the plans are not significant for the plant in question, that adequate interim compensating measures have been or will be taken promptly, or that there are other compelling reasons to permit plant operation," without defining those terms further. The Commission currently believes that the planning standards of 10 CFR 50.47(b), which are used to evaluate a state or local plan, also provide an appropriate framework to evaluate a utility plan. Therefore, the new rule provides for the first time that where a utility plan is submitted, in a situation of state and/or local non-participation in emergency planning, it will be evaluated for adequacy against the same standards used to evaluate a state or local plan. However, due allowance will be made both for the non-participation of the state and/or local governmental authorities and for the compensatory measures proposed by the utility in reaching a determination whether there is "reasonable assurance that adequate protective measures" can and will be taken.

The approach reflected in this rule amplifies and clarifies the guidance

provided in the Commission's decision in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22 (1986). The rule incorporates the "realism doctrine," set forth in that decision, which holds that in an actual emergency, state and local governmental authorities will act to protect the public, and that it is appropriate therefore for the NRC, in evaluating the adequacy of a utility's emergency plan, to take into account the probable response of state and local authorities, to be determined on a case-by-case basis.

That decision also included language which could be interpreted as envisioning that the NRC must estimate the radiological dose reductions which a utility plan would achieve, compare them with the radiological dose reductions which would be achieved if there were a state or local plan with full state and local participation in emergency planning, and permit licensing only if the dose reductions are "generally comparable." Such an interpretation would be contrary to NRC practice, under which emergency plans are evaluated for adequacy without reference to numerical dose reductions which might be accomplished, and without comparing them to other emergency plans, real or hypothetical. The final rule makes clear that every emergency plan is to be evaluated for adequacy on its own merits, without reference to the specific dose reductions which might be accomplished under the plan or to the capabilities of any other plan. It further makes clear that a finding of adequacy for any plan is to be considered generally comparable to a finding of adequacy for any other plan.

The *Long Island Lighting Co.* decision included the observation that in an accident, the "best effort" of state and county officials would include utilizing the utility's plan as "the best source for emergency planning information and options." 24 NRC 22, 31. This rule leaves it to the Licensing Board to judge what form the "best efforts" of state and local officials would take, but that judgment would be made in accordance with certain guidelines set forth in the rule and explained further below. The rulemaking record strongly supports the proposition that state and local governments believe that a planned response is preferable to an ad hoc one. Therefore it is only reasonable to suppose that in the event of a radiological emergency, state and local officials, in the absence of a state or local radiological emergency plan approved by state and local governments, will either look to the utility and its plan for guidance or will follow some other plan that exists. Thus, the presiding Licensing Board may presume that state and local governmental authorities will look to the

utility for guidance and generally follow its plan in an actual emergency; however, this presumption may be rebutted by, for example, a good faith and timely proffer of an adequate and feasible state or local radiological response plan which would in fact be relied upon in an emergency. The presiding Licensing Board should not hesitate to reject any claim that state and local officials will refuse to act to safeguard the health and safety of the public in the event of an actual emergency. In actual emergencies, state, local, and federal officials have invariably done their utmost to protect the citizenry, as two hundred years of American history amply demonstrates.

The rule thus establishes the framework by which the adequacy of emergency planning, in cases of state and/or local non-participation, can be evaluated on a case-by-case basis in operating license proceedings. The rule does not presuppose, nor does it dictate, what the outcome of that case-by-case evaluation will be. As with other issues adjudicated in NRC proceedings, the outcome of case-by-case evaluations of the adequacy of emergency planning using a utility's plan will be subject to multiple layers of administrative review within the Commission and to judicial review in the courts.

Backfit Analysis

This amendment does not impose any new requirements on production or utilization facilities; it only provides an alternative method to meet the Commission's emergency planning regulations. The amendment therefore is not a backfit under 10 CFR 50.109 and a backfit analysis is not required.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. The proposed rule applies only to nuclear power plant licensees which are electric utility companies dominant in their service areas. These licensees are not "small entities" as set forth in the Regulatory Flexibility Act and do not meet the small business size standards set forth in Small Business Administration regulations in 13 CFR Part 121.

Paperwork Reduction Act

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval No. 3150-0011.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference,

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Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and Recordkeeping requirements.

Environmental Assessment and Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The Commission has prepared, in support of this finding, an environmental assessment which is available for inspection and copying, for a fee, at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. This analysis further examines the costs and benefits of the proposed action and the alternatives considered by the Commission. The analysis is available for inspection and copying, for a fee, at the NRC Public Document Room, 1717 H Street, NW., Washington, DC.

For the reasons set out in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the Commission is adopting the following amendments to 10 CFR Part 50:

[Editorial note: The following regulatory analysis and environmental assessment will not appear in the Code of Federal Regulations]

Regulatory Analysis—Evaluation of the Adequacy of Offsite Emergency Planning for Nuclear Power Plants at the Operating License Review Stage Where State and/or Local Governments Decline to Participate in Offsite Emergency Planning

Statement of the Problem

In 1980, Congress enacted provisions dealing with emergency planning for nuclear power plants in the NRC Authorization Act for fiscal year 1980. Section 109 of that Act provided for the NRC to review a utility's emergency plan in situations in which a state or local emergency plan either did not exist or was inadequate. The NRC published regulations later than year that were designed to be consistent with the Congressionally mandated approach, but they did not include specific mention of utility plans. The absence of such a provision has led to uncertainty about the NRC's authority to consider a utility plan and the criteria by which such a plan would be judged. The present rulemaking is designed to clarify both the NRC's obligation to consider a utility plan at the operating license stage in cases of state and/or local non-participation in emergency planning and the standards against which such a plan would be evaluated.

Objective

The objective of the proposed amendments are to implement the policy underlying the 1980 Authorization Act and to resolve, for future licensing, what offsite emergency planning criteria should apply where state or local governments decide not to participate in offsite emergency planning or preparedness.

Alternatives

Five alternatives were considered, including leaving the existing rules unchanged. The pros and cons of these alternatives are discussed in the rule preamble published in the Federal Register.

Consequences

NRC

The amendments will probably not impact on NRC resources currently being used in licensing cases because current NRC policy, developed in the adjudicatory case law, is to evaluate utility plans as possible interim compensating actions under 10 CFR 50.47(c)(1). Thus, while there could be extensive litigation and review regarding whether the rule's criteria are met, this would likely be similar to the review and litigation under current practice.

Other Government Agencies

No impact on other agency resources should result with the possible exception that FEMA will need to devote resources to develop criteria for review of utility plans and/or to review the plans on a case-by-case basis.

Industry

Impacts on the industry are speculative because there is no way to predict, in advance of their actual application, whether any particular utility plan will satisfy the rule. However, industry should generally benefit from knowing that rules are in place so that plans for compliance can be formulated.

Public

Under the rule being adopted a utility plan, to pass muster, is required to provide reasonable assurance that adequate protective measures can and will be taken in an emergency. The rule recognizes—as did Congress when it enacted and re-enacted the provisions of Section 109 of the NRC Authorization Act of 1980—that while no utility plan is likely to be able to provide precisely the same degree of public protection that would obtain under ideal conditions, i.e. a state or local plan with full state and local participation, such a plan may nevertheless be adequate. The rule starts from the premise that accidents can happen, and that at every plant, adequate emergency planning measures are needed to protect the public in the event an accident occurs. Whether in fact a particular utility plan will be found adequate would be a matter for adjudication in individual licensing proceedings.

Impact on Other Requirements

The proposed amendments would not affect other NRC requirements.

Constraints

No constraints have been identified that affect implementation of the proposed amendments.

Decision Rationale

The decision rationale is set forth in detail in the preamble to the rule change published in the Federal Register.

Implementation

The rule should become effective 30 days after publication in the Federal Register. Implementation will involve cooperation with FEMA and the development of FEMA/NRC criteria for review of utility plans may be required before the rule is applied to specific cases.

Environmental Assessment for Amendments to Emergency Planning Regulations Dealing With Evaluation of Offsite Emergency Planning for Nuclear Power Plants at the Operating License Review Stage Where State and/or Local Governments Decline to Participate in Offsite Emergency Planning

Identification of the Action

The Commission is amending its regulations to provide criteria for the evaluation at the operating license stage of offsite emergency planning where, because of the non-participation of state and/or local governmental authorities, a utility has proposed its own emergency plan.

The Need for the Action

As described in the Federal Register notice accompanying the final rule, the Commission's emergency planning regulations, promulgated in 1980, did not explicitly discuss the evaluation of a utility emergency plan, although Congress expressly provided that in the absence of a state or local emergency plan, or in cases where a state or local plan was inadequate, the NRC should consider a utility plan. That omission has led to uncertainty as to whether the NRC is empowered to consider a utility plan in cases of state and/or local non-participation, as well as about what the standards for the evaluation of such a plan would be.

Alternatives Considered

The Commission published a proposed rule change on March 6, 1987, at 52 FR 8980. In deciding on a final rule, the Commission considered four options in addition to the one reflected in the final rule. These were: issuance of the rule as originally proposed and described; issuance of a rule making clear that in cases of state and/or local non-participation, licenses could be issued on the basis of the utility's best efforts; issuance of a rule barring the issuance of licenses in cases of state and/or local non-participation; and termination of the rulemaking without the issuance of any rule change.

Environmental Impacts of the Action

The rule does not alter in any way the requirement that for an operating license to be issued, emergency planning for the plant in question must be adequate. The rule is designed to effectuate the second track of the two-track approach adopted by the Congress in the NRC Authorization Act of 1980 and two successive authorization acts, as described in detail in the Federal Register notice. The rule does not affect the place of emergency planning in the overall safety finding which the Commission must make prior to the licensing of any plant. Accordingly, the rule change does not diminish public protection and has no environmental impact.

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Agencies and Persons Consulted

A summary of the very numerous comments appears as part of the **Federal Register** notice. Shortly before presenting an options paper to the Commission, NRC representatives briefed representatives of the Federal Emergency Management Agency on the contents of the options paper.

Finding of No Significant Impact

Based on the above, the Commission has decided not to prepare an environmental impact statement for the rule changes.

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of
Information

See Part 2 Statements of Consideration

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 8845
Published 3/17/88

10 CFR Part 50

**Evaluation of the Adequacy of Off-Site
Emergency Planning for Nuclear
Power Plants at the Operating License
Review Stage Where State and/or
Local Governments Decline To
Participate in Off-Site Emergency
Planning**

Correction

In rule document 87-25439 beginning on page 42078 in the issue of Tuesday, November 3, 1987, make the following correction:

On page 42079, in the third column, in the second complete paragraph, in the sixth line, "generally" should read "equally".

53 FR 16051
Published 5/5/88
Effective 5/5/88

10 CFR Part 50

**Codes and Standards for Nuclear
Power Plants**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Commission is amending its regulations to incorporate by reference the Winter 1984 Addenda, Summer 1985 Addenda, Winter 1985 Addenda, and 1986 Edition of Section III, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), and the Winter 1983 Addenda, Summer 1984 Addenda, Winter 1984 Addenda, Summer 1985 Addenda, Winter 1985

Addenda, and 1986 Edition of Section XI, Division 1, of the ASME Code. A limitation is placed on the use of paragraph IWB-3640 as contained in the Winter 1983 Addenda and Winter 1984 Addenda of Section XI, Division 1. This limitation requires that for certain types of welds, IWB-3640 when implemented shall be used as modified by the Winter 1985 Addenda. In addition, the existing modification pertaining to the inservice inspection of pressure retaining welds in ASME Code Class 2 piping has been revised to limit its applicability up to the 1983 Edition with addenda up through the Summer 1983 Addenda. The sections of the ASME Code being incorporated by reference provide rules for the construction of light-water-cooled nuclear power plant components and specify requirements for inservice inspection of those components. Adoption of these amendments would permit the use of improved methods for construction and inservice inspection of nuclear power plants.

EFFECTIVE DATE: May 5, 1988. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Office of the Federal Register as of May 5, 1988.

FOR FURTHER INFORMATION CONTACT: Mr. G.C. Millman, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3872.

SUPPLEMENTARY INFORMATION: On June 26, 1987, the Nuclear Regulatory Commission published in the Federal Register (52 FR 24015) a proposed amendment to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to update the reference to editions and addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). This amendment revises § 50.55a to incorporate by reference all editions through the 1986 Edition and all addenda through the Winter 1985 Addenda that modify Division 1 rules of Section III, "Rules for the Construction of Nuclear Plant Components," and, subject to certain limitations and modifications, addenda through the Winter 1985 Addenda that modify Division 1 rules of Section XI, "Rules for the Inservice Inspection of Nuclear Power Plant Components," of the ASME Code. Specifically, this amendment to § 50.55a incorporates by reference the Winter 1984 Addenda, Summer 1985 Addenda, Winter 1985 Addenda, and 1986 Edition for Division 1 rules of Section III, and the Winter 1983 Addenda, Summer 1984 Addenda, Winter 1984 Addenda, Summer 1985 Addenda, Winter 1985 Addenda, and 1986 Edition for Division 1 rules of

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Section XI of the ASME Code. The 1986 Edition is equivalent to the 1983 Edition, as modified by the Summer 1983 Addenda, Winter 1983 Addenda, Summer 1984 Addenda, Winter 1984 Addenda, Summer 1985 Addenda, and Winter 1985 Addenda. The Summer 1984 Addenda and Summer 1985 Addenda for Section XI do not include technical requirements, but are included in the reference to prevent the confusion that might occur with a lack of continuity in the addenda references.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by August 25, 1987. Comments were received from three individuals in response to the notice of proposed rulemaking. Two of the commenters were in favor of the proposed rule, and submitted suggestions for editorial clarifications. One of these commenters was concerned that the manner proposed for specifying the endorsed editions and addenda in §§ 50.55a (b)(1) and (b)(2) was potentially confusing for this specific amendment because the latest addenda that is specified does not modify the latest edition that is specified (i.e., the Winter 1985 Addenda modifies the 1983 Edition). The staff agrees with the commenter and has modified paragraphs (b)(1) and (b)(2) to make it clear that the Winter 1985 Addenda applies to the 1983 Edition, and that the 1986 Edition is the latest ASME Code update being incorporated by reference into the regulation.

The other commenter in favor of the proposed rule believes that the proposed additional sentence in § 50.55a(b)(2)(i) which specifies a limitation on the use of IWB-3640 for certain addenda should be provided for clarity in a separate paragraph. The staff has considered and adopted this suggestion. In this final rule, the specified limitation is contained in a new paragraph (b)(2)(v). This commenter also recommended a revision to Footnote 6 to clarify details regarding implementation of the code cases specified in the identified regulatory guides. It is the opinion of the staff that the rule should not be cluttered with such information. Therefore, that proposed revision has not been incorporated into the final rule. However, the staff is considering incorporating additional information directly into the regulatory guides to clarify their use.

Additionally, this commenter noted that the Winter 1983 Addenda to Section XI included significant improvements to the in-service inspection of Class 2 piping. This comment is correct. In particular, the rules specified in that addenda satisfy NRC staff concerns associated with the rules specified in

earlier addenda for the examination of pressure retaining welds in ASME Code Class 2 piping, including residual heat removal systems, emergency core cooling systems, and containment heat removal systems. The staff previously addressed these concerns by specifying a modification in § 50.55a(b)(2)(iv), which required that the extent of examinations for pressure retaining welds in ASME Code Class 2 piping be determined based upon specific rules in the 1974 Edition and Addenda through the Summer 1975 Addenda. Although the commenter did not make the point specifically, the proposed rule should have recognized the improvements in the Winter 1983 Addenda by incorporating a revision to limit the applicability of the required existing modification specified in paragraph (b)(2)(iv) to ASME Code editions and addenda up to the 1983 Edition with addenda up through the Summer 1983 Addenda. This final rule incorporates this limitation to the use of the modification specified in paragraph (b)(2)(iv).

The third commenter opposed the proposed amendment. That commenter believes that the NRC should not rely on industry standards, but rather should develop its own standards based upon NRC experience and data. NRC practice is to utilize national standards, such as the ASME Code, whenever possible to define acceptable ways of implementing the NRC's basic safety regulations. This is consistent with OMB Circular No. A-119 (Revised),¹ which provides policy and administrative guidance to federal agencies regarding participation in the development and use of voluntary standards. Consistent with this policy, the NRC staff participates actively in the development of many national standards, including the ASME Code, to ensure that NRC experience and data is part of the information base used to support development of the standard. Although the NRC staff is heavily involved in the development of the ASME Code, endorsement of the ASME Code by the NRC without exception is not an automatic action as evidenced by the existing limitations and modifications specified in § 50.55a(b)(2) and the new limitation specified in paragraph (b)(2)(v) by this final rule.

Paragraph IWB-3640 was incorporated into the Winter 1983 Addenda of Section XI, Division 1, to provide procedures and acceptance criteria for determining the acceptability for continued service of austenitic stainless steel piping with flaws in excess of the allowable indications

specified in IWB-3514.3. Concern was expressed by the NRC staff and others that IWB-3640, as presented initially in the Winter 1983 Addenda, did not provide an acceptable level of margin against failure for materials with low toughness, such as might occur in fluxed welds (i.e., submerged arc welds (SAW) or shielded metal arc welds (SMAW)). One concern with low toughness materials was that such materials might fail at load levels below limit load. Additionally, there was concern that secondary stresses, which were not included in the stress analysis procedures required by IWB-3640, might contribute to the failure of low toughness materials.

The ASME established a special task group to address the concerns associated with paragraph IWB-3640 as contained in the Winter 1983 Addenda. In the interim, the NRC staff required that licensees utilizing the procedures and acceptance criteria of IWB-3640, as contained in the Winter 1983 Addenda, apply additional safety factors in their analyses to be submitted to the staff to account for the above concerns. NRC staff acceptance criteria were provided in Generic Letter 84-11, "Inspections of BWR Stainless Steel Piping."²

In the opinion of the NRC staff, the concerns associated with material toughness have been adequately addressed by the ASME Code with the modification to paragraph IWB-3640 in the Winter 1985 Addenda. This addenda provides specific acceptance criteria for SAW and SMAW type welds, and these criteria address the concerns associated with limit load and the need to incorporate secondary stresses in the evaluation.

This amendment to § 50.55a incorporates a limitation in paragraph (b)(2)(v) that allows for the use of paragraph IWB-3640, as contained in the Winter 1983 Addenda and Winter 1984 Addenda, for all applications permitted in that paragraph except those associated with SAW and SMAW type welds. For these welds, this amendment specifies that paragraph IWB-3640, as modified by the Winter 1985 Addenda, must be used.

Footnote B of § 50.55a provides reference to the NRC Regulatory Guides that denote which ASME Code Cases have been determined to be acceptable to the NRC staff for implementation. Previously, this footnote provided reference to only Regulatory Guides 1.84 and 1.85, which denote acceptability of Section III, Division 1, Code Cases on design and fabrication, and on materials, respectively. This amendment

¹ Single copies of OMB Circular No. A-119 may be obtained from the OMB Publications Office, 725 Jackson Place NW., Washington, DC 20503. Telephone (202) 395-7332.

² A copy of Generic Letter 84-11 is available for inspection or copying for a fee at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

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revises Footnote 6 to incorporate a reference to Regulatory Guide 1.147,

"Inservice Inspection Code Case Acceptability—ASME Section XI Division 1," which identifies the Code Cases acceptable to the NRC staff for implementation in the inservice inspection (ISI) program of light-water-cooled nuclear power plants. At present, the Implementation section of Regulatory Guide 1.147 specifies that applicants should make a specific request to the NRC to use Code Cases endorsed in the regulatory guide. The next revision of Regulatory Guide 1.147 (i.e., Revision 6) will reflect the proposed change in Footnote 6 of the regulation. It will permit the use of Code Cases endorsed in the regulatory guide without a specific request to the NRC for approval. In the interim, it is the intent of the NRC that Code Cases listed in Regulatory Guide 1.147 be used without specific application to the NRC. This amendment further revises Footnote 6 to correct the referenced titles for Regulatory Guides 1.84 and 1.85.

Section 50.55a(g) provides requirements for selecting the edition and addenda of Section XI to be complied with during the preservice inspection (§ 50.55a(g)(3), for plants whose construction permit was issued on or after July 1, 1974); the initial 10-year inspection interval (§ 50.55a(g)(4)(i)); and successive 10-year inspection intervals (§ 50.55a(g)(4)(ii)). Paragraph IWA-2400 of Section XI, as revised by the Winter 1983 Addenda, incorporates rules for selecting the applicable edition and addenda of Section XI during the preservice inspection (IWA-2411); the initial 10-year inspection interval (IWA-2412); and successive 10-year inspection intervals (IWA-2413).

The criteria provided in the regulations and Section XI are effectively the same for the preservice inspection, and the successive 10-year inspection intervals, but differ for the initial 10-year inspection interval. For the initial 10-year inspection interval, the regulations specify that inservice examinations of components and inservice tests shall comply with the requirements in the latest edition and addenda of the Code incorporated by reference on the date 12 months prior to the date of issuance of the operating license while Section XI provides that the inspection plan shall comply with the Edition and Addenda of Section XI that has been adopted by the regulatory authority 36 months after the date of issuance of the construction permit, or subsequent Editions and Addenda that have been adopted by the regulatory authority. In general, use of the Commission requirements will result in

the selection of a more recent edition and addenda than will use of the Section XI rules. Satisfying the requirements of § 50.55a(g)(4)(i) for the initial 10-year inspection interval will, in general, also satisfy the rules of Section XI.

It is the Commission's intent that in all cases the existing requirements in § 50.55a(g) be the basis for selecting the edition and addenda of Section XI to be complied with during the preservice inspection, the 10-year inspection interval, and successive 10-year inspection intervals.

Subsection IWE, "Requirements for Class MC Components of Light-Water Cooled Power Plants," was added to Section XI, Division 1, in the Winter 1981 Addenda. However, 10 CFR 50.55a presently incorporates only those portions of Section XI that address the ISI requirements for Class 1, 2, and 3 components and their supports. The regulation does not currently address the ISI of containments. Since this amendment is only intended to update current regulatory requirements to include the latest ASME Code edition and addenda, the requirements of Subsection IWE would not be imposed upon Commission licensees by this amendment. The applicability of Subsection IWE is being considered separately.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this amendment to the regulations. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 1717 H St. NW., Washington, DC. Single copies of the analysis may be obtained from Mr. G.C. Millman, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-3872.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 50.

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 20603
Published 6/6/88
Effective 7/6/88

10 CFR Part 50

Revision of Backfitting Process for Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is promulgating an amended rule which governs the backfitting of nuclear power plants. This action is necessary in order to have a backfit rule which unambiguously conforms with the August 4, 1987 decision of the U.S. Court of Appeals for the District of Columbia in *Union of Concerned Scientists, et al., v. U.S. Nuclear Regulatory Commission*. This action is intended to clarify when economic costs may be considered in backfitting nuclear power plants.

EFFECTIVE DATE: July 6, 1988.

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FOR FURTHER INFORMATION CONTACT:

Steven F. Crockett, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Phone: (202) 492-1600.

SUPPLEMENTARY INFORMATION:

Background

On September 20, 1985, after an extensive rulemaking proceeding which included sequential opportunities for public comment on an advanced notice of proposed rulemaking (48 FR 44217; September 28 1983) and a notice of proposed rulemaking (49 FR 47034; November 30, 1984), the Commission adopted final amendments to its rule which governs the backfitting of nuclear power plants, 10 CFR 50.109 (50 FR 38097; September 20, 1985). Backfitting is defined in some detail in the rule, but for purposes of discussion here it means measures which are directed by the Commission or by NRC staff in order to improve the safety of nuclear power reactors, and which reflect a change in a prior Commission or staff position on the safety matter in question.

Judicial review of the amended backfit rule and a related internal NRC Manual chapter which partially implemented it was sought and, on August 4, 1987, the U.S. Court of Appeals for the DC Circuit rendered its decision vacating both the rule and the NRC Manual chapter which implemented the rule in part. *UCS v. NRC*, 824 F.2d 103. The Court concluded that the rule, when considered along with certain statements in the rule preamble published in the *Federal Register*, did not speak unambiguously in terms that constrained the Commission from considering economic costs in establishing standards to ensure adequate protection of the public health and safety as dictated by section 182 of the Atomic Energy Act. At the same time, the Court agreed with the Commission that once an adequate level of safety protection had been achieved under section 182, the Commission was fully authorized under section 161i of the Atomic Energy Act to consider and take economic costs into account in ordering further safety improvements. The Court therefore rejected the position of petitioners in the case; Union of Concerned Scientists, that economic costs may never be a factor in safety decisions under the Atomic Energy Act.

Because the Court's opinion regarding the circumstances in which costs may be considered in making safety decisions on nuclear power plants was completely in accord with the Commission's own policy views on this important subject, the Commission

decided not to appeal the decision. Instead, the Commission decided to amend both the rule and the related NRC Manual chapter (Chapter 0514) so that they conform unambiguously to the Court's opinion. On September 10, 1987, the Commission published proposed amendments to the rule (52 FR 34223) and provided for a comment period ending on October 13, 1987.¹ The final rule as set out in this document is substantially the same as the proposed rule (52 FR 34223; September 10, 1987).

In this rulemaking the Commission has adhered to the following safety principle for all of its backfitting decisions: The Atomic Energy Act commands the Commission to ensure that nuclear power plant operation provides adequate protection to the health and safety of the public. In defining, redefining or enforcing this statutory standard of adequate protection, the Commission will not consider economic costs. However, adequate protection is not absolute protection or zero risk. Hence safety improvements beyond the minimum needed for adequate protection are possible. The Commission is empowered under section 161 of the Act to impose additional safety requirements not needed for adequate protection and to consider economic costs in doing so.

The 1985 revision of the backfit rule, which was the subject of the Court's decision, required, with certain exceptions, that backfits be imposed only upon a finding that they provided a substantial increase in the overall protection of the public health and safety or the common defense and security and that the direct and indirect costs of implementation were justified in view of this increased protection. The amended rule, set out in this document, restates the exceptions to this requirement for a finding, so that the rule will clearly be in accord with the safety principle stated above.

¹ In its comments on the proposed amendments, the Union of Concerned Scientists asserts that the Federal Register notice of the proposed amendments was technically defective. UCS argues that since the Court had vacated the entire rule, the Federal Register notice should have proposed enactment of an entire, amended, rule, rather than simply amendments to the vacated rule. In weighing the technical merit of UCS' argument, it should be noted that as of the date of the Federal Register notice, the mandate of the Court had not yet issued and the rule was thus still legally in effect. However, the more important consideration is that the notice clearly revealed the Commission's intent to reissue the backfit rule once it had been conformed to the Court's decision. UCS understood this intent and took the opportunity to resubmit the comments it had submitted during the rulemaking leading up to the 1985 revision of the rule. In any event, the Commission is publishing the entire rule in this document.

Particularly in response to the Court's decision, the rule now provides that if the contemplated backfit involves defining or redefining what level of protection to the public health and safety or common defense and security should be regarded as adequate, neither the rule's "substantial increase" standard, nor its "costs justified" standard, see § 50.109(a)(3), is to be applied. (See § 50.109(a)(4)(iii).) Also in response to the Court's decision, see 824 F.2d at 119, the rule now also explicitly says that the Commission shall always require the backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security.

On instruction from the Commission, the NRC staff has amended its Manual chapter on plant-specific backfitting to ensure consistency with the Court's opinion. Copies of the revised chapter are available for public inspection in the Commission's Public Document Room, 1717 H Street NW., Washington, DC 20555.²

Response to Comments

Comments were received from 12 utilities, one Federal agency (DOE), one vendor, seven individuals, seven citizens' groups, and two industry groups. Lengthy and detailed comments were submitted by the Union of Concerned Scientists (UCS) and the Nuclear Utility Backfitting and Reform Group (NUBARG). Both organizations were active in the rulemaking which led to the 1985 revision of the rule. The comments submitted by these two groups encompassed most of the comments made by others. Below, the Commission paraphrases the chief comments and responds to them. The Commission has given careful consideration to every comment. The original comments may be viewed in the NRC's Public Document Room in Washington, DC.

² Several commenters argue that the revised Manual chapter should undergo what amounts to notice and comment rulemaking. However, the Manual chapter, if it is a rule at all, is a rule of agency organization, procedure, or practice, and therefore is not subject to the notice and comment requirements of the Administrative Procedure Act. See 5 U.S.C. 553(b)(A); see also § 553(a)(2). The Commission did publish for comment an earlier version of Manual Chapter (49 FR 16900; April 20, 1984), but that version was already in effect when it was published for comment, and it was published for comment only because the Commission was still in the process of making fundamental changes to the backfitting process and wanted comment on the procedures then in effect. See id.

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"Adequate Protection"

The great majority of the commenters raised issues about the rule's use of the phrase "adequate protection". This phrase is used in the rule's exception provisions. See § 50.109(a)(4). Generally, the rule requires, among other things, that it be shown for a given proposed backfit that implementation of the backfit would bring about a "substantial increase" in overall protection to public health and safety, and that the direct and indirect costs of the backfit are justified by that substantial increase. See § 50.109(a)(3). However, § 50.109(a)(4) also requires that these two standards not be applied in three situations:

First, where the backfit is required to bring a facility into compliance with NRC requirements or the licensee's own written commitments:

Second; where the backfit is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security; and

Third, as noted above, where the backfit involves defining or redefining what level of protection to the public health and safety or common defense and security should be regarded as adequate.

The comments on the rule's use of the phrase "adequate protection" generally took two forms, each discussed more fully later on in this notice. The first form, most fully represented by UCS' comments, was that the rule itself should actually include a definition of "adequate protection" (the final rule set out in this document does not), a phrase nowhere explicitly defined in general terms, either in the Atomic Energy Act, from which the phrase comes, or in the Commission's regulations.

The second, more modest, form of the comments on "adequate protection", most fully represented by NUBARG's comments, was that one or another of the three exception provisions in the rule was redundant (none is). While not amounting to a call for a definition of "adequate protection", NUBARG's comments displayed some of UCS' uncertainty about what the Commission meant by the phrase.

Each group had difficulty applying the phrase to characterize past Commission action in backfitting. UCS claimed that the Commission had never backfitted in order to achieve something beyond "adequate protection." NUBARG, however, claimed that the Commission had never required a backfit on the grounds that compliance with the regulations was not enough to provide

adequate protection. These views, differing in emphasis, reflect the two groups' opposite concerns about the possibility that the Commission would use the phrase "adequate protection" arbitrarily. UCS is concerned that the Commission might interpret the phrase "adequate protection" to refer to a level of safety such that every proposed improvement would be subjected to cost-benefit analysis. Conversely, the industry appears concerned that the Commission might interpret the phrase "adequate protection" to refer to a level of safety such that no proposed improvement would be subjected to cost-benefit analysis.

The Commission certainly did not intend that this rulemaking should focus on the meaning of the phrase "adequate protection". The main point of this rulemaking was simply to negate the misimpression left by two statements in the preamble to the 1985 version of the backfit rule. UCS puts forward two grounds for its emphasis on the phrase "adequate protection". First, UCS asserts that "(t)he crucial decision as to whether cost benefit analysis will be used in assessing the need for backfitting is dependent on whether the particular backfitting under consideration is needed to ensure adequate safety * * * ." Second, UCS claims that the Court "ordered" the Commission to "stop trying to obscure its intentions through ambiguous and vague language * * * ."

However, as will be explained more fully below, the Court's decision turned not on the rule's lack of a definition of "adequate protection" but rather on two statements which seemed to the Court to imply that the Commission intended to take costs into consideration in determining what "adequate protection" required; the meaning of "adequate protection" was simply not an issue in the litigation. Moreover, UCS overestimates the role the phrase "adequate protection" plays in the backfit rule. The threshold decision in considering a proposed backfit, and very often the only decision that need be made,³ is not whether adequate protection is at stake but rather whether the facility is in compliance with the Commission's requirements and the licensee's written commitments.

Even if UCS is right about the importance of the phrase "adequate protection", there is nothing unusual or

imprudent, and certainly nothing illegal, about decisions which ultimately turn on the application—by duly constituted authority and after full consideration of all relevant information—of phrases which are not fully defined. Consider, for instance, the "reasonable assurance" determination the Commission must make before issuing an operating license.⁴ Indeed, most of the Commission's rules and regulations are ultimately based on unquantified and, as we note below, presently unquantifiable ideas of what constitutes "adequate protection".

Were there something peculiarly critical about the role of "adequate protection" in the backfit rule, the issue of the phrase's meaning could have been raised in the rulemaking for the 1985 rule. Two of the three exception provisions set out above were in the 1985 revision of the rule, where they used the equivalent phrase "undue risk" instead of "adequate protection". Also, as the Court in *UCS v. NRC* noted, 824 F.2d at 119, the statement of considerations which accompanied the 1985 version of the rule quite explicitly at least twice limited the consideration of costs in backfitting decisions to situations where "adequate protection" was already secured.⁵

Nonetheless, an issue which is a concern of almost every commenter in this rulemaking should not be ignored. Therefore, the Commission will answer as best it can the questions the commenters have raised concerning the rule's use of the phrase "adequate protection". We begin with UCS' call for an objective and generally applicable definition of "adequate protection". We argue that such a definition is not possible in the near future, but that the public and licensees are nonetheless protected against misuse of the phrase. In the course of responding to UCS' comments, we shall, of necessity, be making at least preliminary responses to most of NUBARG's comments also.

UCS argues that the rule permits the agency to escape its legal responsibility

³ " * * * (A)n operating license may be issued by the Commission * * * upon finding that: * * * (1)there is reasonable assurance * * * that the activities authorized by the operating license can be conducted without endangering the health and safety of the public * * * ." 10 CFR 50.57(a)(3).

⁵ "The consideration and weighing of costs contemplated by the rule applies to backfits that are intended to result in incremental safety improvements for a plant that already provides an acceptable degree of protection[.]" 50 FR 38103, col. 1; also, "(t)he costs associated with proposed new safety requirements may be considered by the Commission provided that the Atomic Energy Act finding 'no undue risk' can be made." *Id.* at 38101, col. 3.

³ For instance, a majority of the plant-specific backfits carried out during the first year after the 1985 revision of the backfit rule became effective were for the sake of compliance. See SECY-86-46, Evaluation of Managing Plant-Specific Backfit Requirements (November 21, 1986), Enclosure 1.

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to articulate the factors on which it bases its backfitting decisions. UCS asserts that the rule should "enunciate criteria and guidelines about what constitutes redefining and defining adequate protection levels, what constitutes an adequate as opposed to a beyond adequate protection level, and what factors place a particular circumstance within the rule or within the exceptions." Another comment asserts that any definition of "adequate protection" should include the resolution of all outstanding safety issues. Yet another calls for "objective criteria", "some real numbers" on releases, accident consequences, and the like.

There does not exist, and cannot exist, at least not yet, a generally applicable definition of "adequate protection" which would guard against every possible misuse of the phrase. Congress established "adequate protection" as the standard the Commission is to apply in licensing a plant, see 42 U.S.C. 2232(a), and gave the Commission authority to issue rules and regulations necessary for protection of public health and safety, see 42 U.S.C. 2201, but Congress did not define "adequate protection", nor did it command the Commission to define it.

Such a definition would have to take one of two forms, one of them incapable of preventing the abuses the commenters are concerned about, and the other simply not possible yet. The first of these would be a verbal definition of the kind encountered in, for instance, the various "reasonable man" standards in the common law. After the pattern of these, the Commission could say, correctly, that "adequate protection" is not zero risk, that it is the same as "no undue risk", that it has long-term and short-term aspects, and that it is that level of safety which the Atomic Energy Act requires for initial and continued operation of a nuclear power plant. However, such a definition clearly will not, of itself, prevent the abuses UCS and NUBARG are concerned about, nor is such a standard sufficiently helpful to the NRC staff in actual practice.

Thus, if there is to be a useful and generally applicable definition of "adequate protection", it must take another, more precise form, namely, quantitative. Several of the commenters seem to have such a definition in mind when they call for "objective criteria", some "real numbers", and the like. In fact, the Commission is actively pursuing reliable quantitative measures of safety, and some quantitative and generally applicable definition of "adequate protection" may eventually

emerge as a byproduct of the Commission's efforts, still in their early stages, to implement its general safety goals, which take a partly quantitative form. (See 51 FR 30028, August 21, 1986, Policy Statement on Safety Goals.) However, given the state of the art in quantitative safety assessment, it is not reasonable to expect that the Commission could make licensing decisions—let alone decisions on whether to consider cost in backfitting—wholly on a quantitative definition of "adequate protection". Surprisingly, some of the commenters who call for "objective criteria", "some real numbers", and the like, have in the past criticized quantitative risk assessments.

Nonetheless, even in the absence of a useful and generally applicable definition of "adequate protection", the Commission can still make sound judgments about what "adequate protection" requires, by relying upon expert engineering and scientific judgment, acting in the light of all relevant and material information. As UCS itself said in its comments on the proposed 1985 revision of the rule, "(u)ltimately, the determination of what standards must be met in order to provide a reasonable assurance that the public health and safety will be protected comes down to the reasoned professional judgment of the responsible official."

The Commission's exercise of this judgment will take two familiar forms, of which the most important is rule and regulation. An essential point of the Commission's having regulations is to flesh out the "adequate protection" standard entrusted to the Commission by Congress. See *UCS v. NRC*, 824 F.2d at 117-18. Exercising engineering and scientific judgment in the light of all relevant and material information, the NRC identifies potential hazards and then requires that designs be able to cope with such hazards with sufficient safety margins and reliable backup systems. Regulations and guidance arrived at in this way do not, strictly speaking, "define" adequate protection, since there will be times when the NRC issues rules which require something beyond adequate protection. Nonetheless, compliance with such regulations and guidance may be presumed to assure adequate protection at a minimum. As the Commission has said on many occasions, compliance with the Commission's regulations and guidance "should provide a level of safety sufficient for adequate protection of the public health and safety and common defense and security under the Atomic Energy Act." (49 FR 47034, 47036,

col. 2, November 30, 1984, proposed 1985 rule; see also 50 FR 38097, 38101, col. 3, September 20, 1985, final 1985 rule; 51 FR 30028, col. 1, August 21, 1986, Policy Statement on Safety Goals.)

Because "adequate protection" is presumptively assured by compliance with the regulations and other license requirements, all the versions of the backfit rule—the 1970 rule, the 1985 rule, and the one set out in this document, see § 50.109(a)(4)(i)—have a "compliance" exception: plants out of compliance may be backfitted without findings of "substantial increase" in protection or a "justification" of costs.

However—and here is where the lack of a general definition for "adequate protection" poses a challenge—"adequate protection" is only presumptively assured by compliance. As the Commission said in promulgating the 1985 revision, the presumption may be overcome by, for instance, new information which indicates that improvements are needed to ensure adequate protection. (50 FR 38101, col. 3.) Such new information may reveal an unforeseen significant hazard or a substantially greater potential for a known one, or insufficient margins and backup capability. Engineering judgment may, in the light of such information, conclude that restoration of the level of protection presumed by the regulations requires more than compliance. Thus both the 1985 revision and the revision below contain exemptions for backfits necessary to assure "adequate protection", or, as the 1985 rule equivalently said, "no undue risk". See § 50.109(a)(4)(ii) of the rule set out in this document.

If compliance does not assure adequate protection, the Commission must be able to determine how much more protection is required, and a precise and generally applicable definition of "adequate protection" would facilitate that determination. But such a definition would have only a limited role to play. The first and most crucial question is whether the proposed backfit is required to bring a plant into compliance. Only if the proposed backfit requires more than compliance with NRC regulations and license conditions need there be a determination as to what "adequate protection" requires. Given this relation between compliance and "adequate protection", the industry might be more concerned than UCS is about the lack of a general definition of "adequate protection", for UCS will at least have the comfort of knowing that compliance will be secured before cost is considered, but the industry cannot be

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sure how much more than compliance may be asked of it despite the cost.

Where, as in the cases contemplated by the second exception provision of the rule, more than compliance is required and quantitative criteria do not define "adequate protection", the agency must fall back on the second familiar form in which engineering judgment is exercised by the Commission, namely, case-by-case. Administrative agencies are not required to proceed by rule alone, for the method of case-by-case judgment is quite capable of meeting the requirement that the factors on which administrative decisions are based be articulated. Rather than proceeding by an almost ministerial application of "objective criteria", the Commission must fashion a series of case-by-case judgments into a well-reasoned and factually well-supported body of decisions which, acting as reasoned precedent, can control and guide the Commission's exercise of the discretion granted it by Congress in precisely the way in which common-law precedents control and guide the common law judge's exercise of his or her judgment. See *Nader v. Ray*, 363 F.Supp. 946, 954-55 (D.D.C. 1973) (determining what constitutes adequate protection calls for exercise of discretion in a judgmental process very different from acting in accord with a clear, non-discretionary legal duty).

The Commission foresaw the need to proceed case-by-case on occasion and therefore made it a principal aim of the backfit rule to centralize the responsibility and document the bases for case-by-case decisions for such decisions. The Commission thereby hoped to better assure that such decisions as might of necessity be case-by-case would form a reasoned and coherent body.⁶

⁶ UCS alleges that in three instances the Commission has abused its discretion by applying cost considerations in specific cases where licensees are in compliance but adequate protection is at stake. However, UCS is misinformed about the first of the three cases, and its allegations about the other two reduce simple to disagreement over what constitutes adequate protection. We briefly discuss the three cases below.

Citing trade journal articles which quote unnamed NRC sources, UCS claims that the backfit rule caused the NRC staff to change its mind about requiring two licensees to conduct certain inspections and analyses in order to justify continued operations. The two plants in question had reactor pump coolant shafts similar to ones which elsewhere had shown a high probability of shearing off under certain conditions. UCS asserts that "[w]e . . . learn from this example the inherent lack of logic and circularity embedded in the rule: NRC is prevented, by operation of the rule, from asking questions needed to learn the degree of risk of a known equipment problem because they do not know the answers in advance."

Nothing in the Court's ruling in *UCS v. NRC* forbids the Commission's approach

However, the facts of the situations were not what UCS alleges them to have been: indeed the backfit rule was not involved. Letters were sent on April 23, 1986 requiring the licensees to submit within 20 days information which would "enable the Commission to determine whether or not [their] license(s) should be modified." Such information included information on design, operational history, schedules for inspection, plans for operator training, and "any analysis performed subsequent to those done for the FSAR (Final Safety Analysis Report) which would address the consequences of a locked rotor or broken shaft event during plant operation." These letters were sent under the first part of 10 CFR 50.54(f). This part authorizes such information requests without consideration of cost. As an earlier draft of the April 23 letter available in the NRC's Public Document Room shows, the NRC had planned to ask for new analyses under a later part of § 50.54(f) which authorizes requests not required to assure adequate protection if "the burden to be imposed . . . is justified in view of the potential safety significance of the issue to be addressed in the requested information." 10 CFR 50.54(f). (This "safety significance" standard, by its emphasis on "potential", requires less than is required by the "(actual) substantial increase" standard in the backfit rule and also avoids the circularity UCS alleges.) However, the staff sensibly opted for first asking whether such analyses had already been done. In fact they had, or were underway when the letters were sent. The backfit rule played no part here.

UCS' second instance of alleged abuse involves the Mark I containment, about whose performance in beyond-design-basis accidents (ones which involve damage to the reactor core) there is substantial uncertainty. UCS asserts that cost considerations have blocked staff action which would have brought about a significant reduction in some of the figures which estimate the probability that the Mark I would fail in certain kinds of beyond-design-basis accidents. UCS adds in passing that those figures represent undue risk. The NRC staff has already made a formal reply to similar charges of undue risk. See, e.g., Boston Edison Co. (Pilgrim Nuclear Generating Station), Interim Director's Decision under 10 CFR 2.206, DD-87-14, 26 NRC 87, 95-106 (1987). Suffice it here to say that the NRC staff has by no means completed its considerations of the Mark I containment; but that, given present information, the staff has concluded that overall severe-accident risks at plants with Mark I containments are not undue. *Id.* at 104-106. UCS is content to put forward only unsupported assertions to the contrary. Thus the staff may legitimately consider cost when deciding whether to backfit the Mark I containments.

UCS' third allegation of abuse rehearses part of its February 10, 1987 § 2.206 Petition to the Commission for immediate action to relieve allegedly undue risks posed by nuclear power plants designed by the Babcock & Wilcox Company. The NRC's Director of Nuclear Reactor Regulation responded fully to the Petition, denying it, on October 19, 1987 (UCS' comments on the proposed backfit rule were submitted on October 13). See Director's Decision Under 10 CFR 2.206, DD-87-18, 26 NRC—(October 19, 1987). The Director concluded that "there are no substantial health and safety issues that would warrant the suspension or revocation of any license or permit for such facilities." Slip Opinion at 63. Simply because UCS disagrees with such conclusions does not mean that the Commission is misusing the "adequate protection" standard.

to "adequate protection". UCS boldly asserts that the proposed rule "completely fail[ed] to comport with the orders and directions of the Court of Appeals in *UCS v. NRC*", that the Court "could not have been more clear about the defects of the backfit rule", that the proposed revised rule "suffers from the exact same defects" as the one vacated, that, indeed, "the new proposal is even more devoid of objective guidance or criteria . . . than was its predecessor."

UCS' criticisms are based on part of a single paragraph in the Court's decision. In pertinent part, that paragraph says, " . . . In our view, the backfitting rule is an exemplar of ambiguity and vagueness; indeed, we suspect that the Commission designed the rule to achieve this very result. The rule does not explicate the scope or meaning of the three listed 'exceptions'. The rule does not explain the action the Commission will (in italics) take when a backfit falls within one of these exceptions. In short, the rule does not speak in terms that constrain the Commission from operating outside the bounds of the statutory scheme." 824 F.2d at 119.

UCS says that this portion of a paragraph was an "order" by the Court to get the Commission to "stop trying to obscure its intentions through ambiguous and vague language" Whether the Court's language amounts to an "order" or only strong advice, we have followed it. For one thing, the rule explicitly says that backfits falling within the exceptions will be imposed (inexplicably, UCS asserts that the proposed rule did not have this provision). See § 50.109(a)(4). For another, both in what we have already said, and in what we shall be saying in response to NUBARG's comments on the exceptions provisions, we shall have explicated the scope and meaning of the three listed exceptions.

However, we have not taken the quoted language of the Court to mean that, after years of making rules and adjudicating cases which ultimately depend on the Commission's judgment about what "adequate protection" requires, the Commission should be obliged to give a mechanically applicable definition of "adequate protection" in order to avoid using the time-honored method of case-by-case, precedent-guided, judgment to implement only a part of the backfit rule. Certainly, the Court never even noted a lack of a general definition of "adequate protection" in the rule, let alone "ordered" the Commission to provide such a definition.

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UCS' position lacks all sense of proportion. We must emphasize the core of the Court's decision, rather than get bogged down by transforming a suspicion and a few criticisms of the rule into an order to undertake an unprecedented task of definition.

Reviewing the exceptions in the rule, and various statements in the Federal Register notice accompanying the rule, the Court said, "We conceivably could read the terms of this rule to comply with the statutory scheme we have described above [that is, a scheme in which economic costs can play no part in establishing what adequate protection requires]." Id. Moreover, the Court says this despite the lack of any summary, general, "objective" definition of "adequate protection" in the rule.

But the Court then went on to say, "Statements that the Commission has made in promulgating the rule and in defending it before this court, however, disincite us from interpreting the rule in this fashion." Id. Again, it is not the lack of a definition of adequate protection that disinclined the Court from saving the rule, but rather certain statements the Commission had made which seemed to suggest that the Commission might consider economic cost when deciding what adequate protection required.

The Three Exceptions

Echoing the Court's remark that the rule "does not explicate the scope or meaning of the three listed 'exceptions'", id., NUBARG "believes that there is a substantial amount of overlap in these exceptions and that they have not been adequately defined or explained in the proposed rule." NUBARG and others representing the industry are concerned that the two exception provisions which use the phrase "adequate protection", §§ 50.109(a)(4)(ii) and (iii), may "swallow" the rule. One industry commenter objects to the notion, implied by § 50.109(a)(4)(ii), that adequate protection might require more than compliance. Another is concerned that § 50.109(a)(4)(iii), the exception which has been added in response to the Court's ruling, might lead to redefinitions of "adequate protection" that would threaten loss of licenses.

To avoid these results, NUBARG and others recommend deleting one of the two exception provisions which use the phrase "adequate protection". NUBARG's choice is § 50.109(a)(4)(ii), retained from the 1985 version of the rule, where it used the equivalent phrase, "no undue risk". This section provides that the "substantial increase

and "costs justified" standards will not apply to backfits necessary to provide adequate protection to public health and safety. NUBARG calls this provision redundant to the exception for backfits required for the sake of compliance. § 50.109(a)(4)(i). As was noted above, NUBARG reports that its research has uncovered no case in which the Commission "has recognized that some additional measures not contained in existing requirements are necessary to ensure that a facility continues to meet the current level of adequacy." Two other commenters believe that the exception provision added because of the litigation, § 50.109(a)(4)(iii), should be deleted, as being redundant to the provision NUBARG would like to see deleted.

No matter which of the two provisions the commenter would like to see deleted, the commenter would like some restrictions placed on the use of the remaining one. The restriction by far the most frequently proposed is that no action may be taken under the remaining exception provision in the absence of "significant new information or the occurrence of an event which clearly shows" that the action is necessary.

In sum, these commenters either reopen an issue settled in 1985 or they recommend deleting that part of the rule which directly responds to the Court's ruling. We take neither course, for, even putting the 1985 rule and the Court's ruling aside, if either of the two provisions were to be deleted, an essential power of the Commission would be remain unimplemented.

First, the exception for backfits necessary to secure adequate protection, § 50.109(a)(4)(ii), must be retained, because it must be made clear that Commission action is not to be obstructed by cost considerations in a situation where compliance has indeed proved to be insufficient to secure the level of protection presumed in the rule, order, or commitment in question. Despite the results of NUBARG's research, such situations have arisen. See, e.g., SECY-86-346, "Evaluation of Managing Plant-Specific Backfit Requirements", November 21, 1986. Accordingly, this exception provision is not redundant to the exception for backfits necessary to restore compliance. Neither is it redundant to the exception for backfits involving the defining or redefining of "adequate protection", for the latter exception assumes some change in the NRC's judgment of what level of protection should be regarded as "adequate".

Retaining § 50.109(a)(4)(iii) will not give the Commission the power to proclaim at will that compliance is not enough. As we said in the statement of considerations accompanying the 1985 rule, and have in part reiterated in the response to UCS' comments, the regulations, though they do not define "adequate protection", are presumed to ensure it, and, in the absence of a redefinition of "adequate protection", that presumption can be overcome only by significant new information or some showing that the regulations do not address some significant safety issue. "(I)t may be presumed that the current body of NRC safety regulations provides adequate protection. Where new information indicates that improvements are needed to ensure there is 'no undue risk' on * * * a * * * basis which the Commission believes to be the minimum necessary, such requirements must be imposed." (50 FR at 38101-102.)

Second, the exception provision for backfits which are necessary under a defining or redefining of "adequate protection", § 50.109(a)(4)(iii), must be retained because it must be made clear that, as the Court held, cost may not be a factor in setting the level of protection judged as "adequate".⁷ As NUBARG acknowledges, citing *Power Reactor Development Co. v. International Union of Electrical, Radio and Machine Workers, AFL-CIO*, 367 U.S. 396, 408 (1961), the Commission has both the power to define "adequate protection", and the power to re-define it.⁸ Without this last exception provision, it might appear from the rule either that the Commission had no such power or that it was restricted by cost considerations, contrary to the Court's ruling. Nor should this exception provision be limited to situations involving "significant new information," as proposed in several comments.

This last exception may be thought by some to threaten to swallow the backfit rule. We believe, however, that instances of backfits based on a "redefinition" of "adequate protection" will be rare. Moreover, the case-by-case approach which is required in the

⁷ As the rule notes in § 50.109(a)(7), cost may nonetheless be a consideration in choosing the means of achieving "adequate protection".

⁸ The words "defining or redefining" in this third exception should not be construed necessarily to mean "providing a useful and generally applicable definition", at least not until such a definition becomes possible. Under present conditions, the Commission will have "defined or redefined what level of protection is to be regarded as adequate" if it makes a judgment that, although compliance assures the level of protection that had been thought of as adequate, that level of protection should no longer be considered adequate.

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absence of a general definition of "adequate protection" provides licensees—and the public—a large measure of protection from arbitrary action by the Commission. Citing case law, NUBARG says that, in applying this last exception provision, the Commission "must act rationally and consistently in light of available evidence", and "must apply a reasoned analysis indicating the prior policies and standards are being changed, not casually ignored * * *." We wholly agree, and believe that the approach envisioned by the backfit rule will facilitate the Commission's acting accordingly.

Other Matters

Two other comments bearing on the phrase "adequate protection" require an explicit response. First, several commenters from the industry would prefer that the rule state that the "documented evaluation" which the NRC must prepare in connection with any action under one of the exception provisions, see § 50.109(a)(4), should include consideration of as many of the factors which § 50.109(c) requires of a "backfit analysis" as are appropriate.

The suggested modification of the rule would have only limited utility. Few of the factors listed in § 50.109(c) of the rule are appropriate for consideration in a documented evaluation justifying action under the compliance exception in the rule. It is true that several of the factors in § 50.109(c), indeed, all of them but those in paragraphs (c) (5) and (7) and some of those in paragraph (c)(8) are appropriate for consideration under the "adequate protection" exception, to the extent that they require a showing of exactly what the licensees must do and a showing that the backfit in question actually contributes to safety. However, the Commission believes that the rule's requirement that the documented evaluation "include a statement of the objectives of and reasons for the modification and the basis for invoking the exception" adequately assures that the factors in § 50.109(c) will be considered to the extent relevant, without their being listed and labeled as if they were a part of a § 50.109(c) analysis. Thus, little, if anything, is to be gained by an explicit requirement that § 50.109(c) factors be considered in a documented evaluation.

Second, one citizens' group asserts that the backfit rule should not apply to rulemaking. This issue was thoroughly discussed in 1985. However, this group's comment puts the issue in a slightly altered light, and provides another opportunity to clarify the meaning of "adequate protection". The group argues

that since rules "define" "adequate protection", the Commission cannot apply the rule's "substantial increase" and "cost justified" standards in rulemaking without applying cost considerations in setting the standard of adequate protection, contrary to the Court's holding.

The answer to this comment is, of course, that the rules do not, strictly speaking, "define" "adequate protection", and they only presumptively assure it. Not only may there, as stated above, be individual cases that require actions that go beyond what is necessary under the regulations to assure adequate protection, there will also be times when the NRC issues a rule which requires something beyond adequate protection. This follows directly from the Commission's power under section 161 of the Atomic Energy Act, affirmed by the Court, to issue rules or orders to "minimize danger to life or property." See 42 U.S.C. 2201; see also *USC v. NRC*, 824 F.2d at 118. If a proposed rule requires something more than adequate protection, applying a cost standard to the proposed rule will not be introducing cost considerations into the setting of the adequate protection standard and is therefore permitted. Of course if the rule is directed at either establishing what level of protection is "adequate" or assuring that such a level of protection is met, then cost will play no role.

The backfit rule as set out below is substantially the same as the rule proposed in the Federal Register. (See 52 FR 34223; September 10, 1987.) Provisions which appeared at the end of § 50.109(a)(4) of the proposed rule, or in the footnote to that paragraph, appear below in new paragraphs (a) (5) through (7).

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, Approval Number 3140-0011.

Regulatory Analysis

The revision to 10 CFR 50.109 will bring it into conformance with the holding in *Union of Concerned Scientists, et al., v. U.S. Nuclear Regulatory Commission*, D.C. Cir. Nos. 85-1757 and 86-1219 (August 4, 1987). The revision clarifies the backfit rule to reflect NRC practice that, in determining whether to adopt a backfit requirement, economic costs will be considered only when addressing those backfits involving safety requirements beyond those needed to ensure the adequate protection of public health and safety. Such costs are not considered when establishing the adequate protection of public health and safety. This revised rule does not have a significant impact on State and local governments and geographical regions, public health and safety, or the environment; nor does it represent substantial costs to licensees, the NRC, or other Federal agencies. This constitutes the regulatory analysis for this rule.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this final rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. The affected facilities are licensed under the provisions of 10 CFR 50.21(b) and 10 CFR 50.22. The companies that own these facilities do not fall within the scope of "small entities" as set forth in the Regulatory Flexibility Act or the Small Business Size Standards set forth in regulations issued by the Small Business Administration in 13 CFR Part 121.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this rule because it does not impose requirements on 10 CFR Part 50 licensees.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and Recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 50.

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EFFECTIVE DATE: July 21, 1988.

FOR FURTHER INFORMATION CONTACT: Aleck Serkiz, Division of Reactor and Plant Systems, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3555.

SUPPLEMENTARY INFORMATION:

Background

The alternating current (ac) electric power for essential and nonessential service in a nuclear power plant is supplied primarily by offsite power. Redundant onsite emergency ac power systems are also provided in the event that all offsite power sources are lost. These systems provide power for various safety functions, including reactor core decay heat removal and containment heat removal, which are essential for preserving the integrity of the reactor core and the containment building, respectively. The reactor core decay heat can also be removed for a limited time period by safety systems that are independent of ac power.

The term "station blackout" means the loss of offsite ac power to the essential and nonessential electrical buses concurrent with turbine trip and the unavailability of the redundant onsite emergency ac power systems (e.g., as a result of units out for service of maintenance or repair, failure to start on demand, or failure to continue to run after start). If a station blackout persists for a time beyond the capability of the ac-independent systems to remove decay heat, core melt and containment failure could result.

The Commission's existing regulations establish requirements for the design and testing of onsite and offsite electric power systems that are intended to reduce the probability of losing all ac power to an acceptable level. (See General Design Criteria 17 and 18, 10 CFR Part 50, Appendix A.) The existing regulations do not require explicitly that nuclear power plants be designed to assure that core cooling can be maintained for any specified period of loss of all ac power.

As operating experience has accumulated, the concern has arisen that the reliability of both the onsite and offsite emergency ac power systems might be less than originally anticipated, even for designs that meet the requirements of General Design Criteria 17 and 18. Many operating plants have experienced a total loss of offsite power, and more occurrences can be expected in the future. Also, operating experience with onsite emergency power systems has included many instances when diesel generators failed to start. In a few cases, there has been a complete loss of both the offsite and the onsite ac power systems. During these events, ac power was restored in a short time without any serious consequences.

In 1975, the results of the Reactor Safety Study (WASH-1400)¹ showed that station blackout could be an important contributor to the total risk from nuclear power plant accidents. Although this total risk was found to be small and not undue, the relative importance of the station blackout accident was established. Subsequently, the Commission designated the issue of station blackout as an Unresolved Safety Issue (USI); a Task Action Plan (TAP A-44) was issued in July 1980, and studies were initiated to determine whether additional safety requirements were needed. Factors considered in the analysis of risk from station blackout included: (1) The likelihood and duration of the loss of offsite power; (2) the reliability of the onsite ac power system; and (3) the potential for severe accident sequences after a loss of all ac power, including consideration of the capability to remove core decay heat without ac power for a limited time period.

The technical findings of the staff's studies of the station blackout issue are presented in NUREG-1032, "Evaluation of Station Blackout Accidents at Nuclear Power Plants, Technical Findings Related to Unresolved Safety Issue A-44." Additional information is provided in supporting contractor reports: NUREG/CR-3226, "Station Blackout Accident Analyses," published in May 1983; NUREG/CR-2989, "Reliability of Emergency AC Power Systems at Nuclear Power Plants," published in July 1983; NUREG/CR-3992, "Collection and Evaluation of Complete and Partial Losses of Offsite Power at Nuclear Power Plants," published in February 1985; and NUREG/CR-4347, "Emergency Diesel Generator Operating Experience, 1981-1983," published in December 1985. The major results of these studies are given below.

- Losses of offsite power can be characterized as those resulting from plant-centered faults, utility grid blackout, and severe-weather-induced failures of offsite power sources. Based on operating experience, the frequency of total losses of offsite power in operating nuclear power plants was found to be about one per 10 site-years. The median restoration time was about one-half hour, and 90 percent of the offsite power losses were restored within approximately 3 hours (NUREG/CR-3992).

- The review of a number of representative designs of onsite emergency ac power systems has

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10 CFR Part 50

Station Blackout

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to require that light-water-cooled nuclear power plants be capable of withstanding a total loss of alternating current (ac) electric power (called "station blackout") for a specified duration and maintaining reactor core cooling during that period. This requirement is based on information developed under the Commission's study of Unresolved Safety Issue A-44, "Station Blackout." The amendment is intended to provide further assurance that a loss of both offsite power and onsite emergency ac power systems will not adversely affect the public health and safety.

¹ Copies of all NRC documents are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street, NW., Washington, DC 20555. Copies of published documents may also be purchased through the U.S. Government Printing Office by calling (202) 275-2060 or by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082.

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indicated a variety of potentially important failure causes. However, no single improvement was identified that could result in a significant improvement in overall diesel generator reliability. Data obtained from operating experience in the period from 1976 to 1980 showed that the typical individual emergency diesel generator failure rate was about 2.5×10^{-2} per demand (i.e., one chance of failure in 40 demands), and that the emergency ac power system unavailability for a plant which has two emergency diesel generators, one of which was required for decay heat removal, was about 2×10^{-3} per demand (NUREG/CR-2989).

- Compared to the data in NUREG/CR-2989, updated estimates of emergency diesel generator failure rates indicated that diesel generator reliability has improved somewhat from 1976 to 1983. For the period 1981 to 1983, the mean failure rate for all demands was about 2.0×10^{-2} per demand (i.e., one chance of failure in 50 demands). However, the data also indicate that the probability of diesel generator failures during actual demands (i.e., during losses of offsite power) is greater than that during surveillance tests (NUREG/CR-4347).

- Given the occurrence of a station blackout, the likelihood of resultant core damage or core melt is dependent on the reliability and capability of decay heat removal systems that are not dependent on ac power. If sufficient ac-independent capability exists, additional time will be available to restore ac power needed for long-term cooling (NUREG/CR-3226).

- It was determined by reviewing design, operational and site-dependent factors that the expected frequency of core damage resulting from station blackout events could be maintained near 10^{-4} per reactor-year with readily achievable diesel generator reliabilities, provided that plants are designed to cope with station blackout for a specified duration. The duration for a specific plant is based on a comparison of the plant's characteristics to those factors that have been identified as the main contributors to risk from station blackout (NUREG-1032).

The staff's technical findings show that station blackout does not pose an undue risk to public health and safety. The findings summarized above show that recovery from loss of offsite power occurs for the most part in less than 4 hours, emergency diesel generator reliability is high (i.e., >0.95), and that given a station blackout the likelihood of core damage is more dependent on decay heat removal systems that are non-ac-dependent. However, plant

design and operational characteristics, plus site-dependent factors (such as anticipated weather conditions) introduce a level of variability which warrants a need for plant-specific coping analyses to provide greater assurance that core cooling can be maintained until ac power is restored. Thus the Commission believes that § 50.63 of 10 CFR Part 50 will bring about a significant increase in protection to the public health and safety. As a result of station blackout coping analyses, improved guidance will be provided to licensees regarding maintaining minimum emergency diesel generator reliability to minimize the probability of losing all ac power. In addition, the Commission is amending its regulations by adding a new § 50.63 to require that all nuclear power plants be capable of coping with a station blackout for some specified period of time. The period of time for a specific plant will be determined based on a comparison of the individual plant's design with factors that have been identified as the main contributions to risk of core damage resulting from station blackout.

These factors, which vary significantly from plant to plant because of considerable differences in design of plant electric power systems as well as site-specific considerations, include: (1) Redundancy of onsite emergency ac power sources (i.e., number of sources minus the number needed for decay heat removal), (2) reliability of onsite emergency ac power sources (usually diesel generators), (3) frequency of loss of offsite power, and (4) probable time to restore offsite power. The frequency of loss of, and time to restore, offsite power are related to grid and switchyard reliabilities, historical weather data for severe storms, and the availability of nearby alternate power sources (e.g., gas turbines). Experience has shown that long duration offsite power outages are caused primarily by severe storms (hurricanes, ice, snow, etc.).

The objective of the rule is to reduce the risk of severe accidents resulting from station blackout by maintaining highly reliable ac electric power systems and, as additional defense-in-depth, assuring that plants can cope with a station blackout for some period of time. The rule requires all plants to be able to cope with a station blackout for a specified acceptable duration selected on a plant-specific basis. All licensees and applicants are required to assess the capability of their plants to cope with a station blackout (i.e., determine that the plant can maintain core cooling with ac power unavailable for an

acceptable period of time), and to have procedures and training to cope with such an event. Licensees may use an alternate ac power source if that source meets specific criteria for independence and capacity and can be shown to be available within one hour to cope with a station blackout. A coping analysis is not required for those plants that choose this alternate ac approach if the alternate ac can be demonstrated by test to be available to power the shutdown buses within 10 minutes of the onset of station blackout. Use of an alternative ac source, one that minimizes common mode failure, is a preferred option since this approach will also benefit other safety concerns.

On the basis of station blackout studies conducted for USI A-44 and presented in the reports referenced above, the NRC staff has developed Regulatory Guide 1.155 entitled "Station Blackout," which presents guidance on (1) maintaining a high level of reliability for emergency diesel generators, (2) developing procedures and training to restore offsite and onsite emergency ac power should either one or both become unavailable, and (3) selecting a plant-specific acceptable station blackout duration which the plant would be capable of surviving without core damage. Application of the methods in this guide would result in selection of an acceptable station blackout duration (e.g., 2, 4, 8, or 16 hours) which depended on the specific plant design and site-related characteristics acceptable to the staff. However, applicants and licensees could propose alternative methods to those specified in the regulatory guide in order to justify other acceptable durations for station blackout capability. Additionally, the regulatory guide on station blackout presents guidance on quality assurance and specifications for alternate ac source(s) and non-safety-related equipment required for coping with station blackout. The equipment installed to meet the station blackout rule must be implemented so that it does not degrade the existing safety-related systems. This is to be accomplished by making the non-safety-related equipment independent to the extent practicable from existing safety-related systems. The guidance provided in the regulatory guide illustrates the specifications that the staff would find acceptable for non-safety systems and equipment. The quality assurance guidance for the non-safety-related equipment for which there are no existing NRC quality assurance requirements (e.g., Appendix B, Appendix R) embody the following elements: (1) Design control and

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procurement document control, (2) instructions, procedures and drawings, (3) control of purchased material, equipment and services, (4) inspection, (5) test and test control, (6) inspection, test and operating status, (7) non-conforming items, (8) corrective action, (9) records, (10) audits. NRC inspections will focus on the implementation and the effectiveness of these quality controls as described in the regulatory guide.

Based on the rule and regulatory guide, those plants with an already low risk from station blackout would be required to withstand a station blackout for a relatively short period of time and probably would need few, if any, modifications as a result of the rule. Plants with currently higher risk from station blackout would be required to withstand somewhat longer duration blackouts. Depending on their existing capability, these plants might need to make hardware modifications (such as increasing station battery capacity or condensate storage tank capacity) in order to cope with the longer station blackout duration. The rule requires that each light-water-cooled nuclear power plant licensed to operate must be able to withstand for a specified duration and recover from a station blackout. The rule requires each plant to perform a coping analysis and identify the coping duration, along with the basis therefor and a description of procedures established for coping and recovery. If modifications to equipment or plant procedures are necessary, these are to be identified and a schedule provided for implementing such changes.

It should be noted, based on all evidence that staff has on hand, that no undue risk exists with, or without, the promulgation of the station blackout rule. However, station blackout may still remain an important contributor to residual risk. This station blackout rule will enhance safety by accident prevention and thereby reduce the likelihood of a core damage accident being caused by a station blackout occurrence. This does not mean however, that further enhancements in reducing the overall residual risk are not achievable by additional improvements in severe accident management, given the assumption that core damage occurs, whether from station blackout sequences or other causes (such as small or large loss-of-coolant accident sequences). Initiatives that provide such safety enhancements (through improvements of core damage management procedures) are currently being pursued apart from the station blackout rule. Therefore, this rule should

be viewed as being in the same accident prevention context as the ATWS rule (§ 50.62) and the fire protection rule (§ 50.48) in that it recognizes, as the other two rules recognize, multiple failure possibilities resulting from common cause effects that should be addressed. This concern has been recognized in the Introduction to Appendix A of 10 CFR Part 50.

Proposed Rule

On March 21, 1986, the Commission published a proposed rule in the *Federal Register* (51 FR 9829) that would require (1) light-water-cooled nuclear power plants to be capable of coping with a station blackout for a specified duration, and (2) licensees to determine the maximum duration for which their plants as currently designed are able to cope with a station blackout. A 90-day comment period expired on June 19, 1986.

On April 3, 1986 (13 days after the proposed rule was published), the NRC published in the *Federal Register* (51 FR 11494) a notice of availability and request for comments on a draft regulatory guide entitled "Station Blackout" (Task SI 501-4). This draft guide provided guidance for licensees to comply with the proposed station blackout rule. Many letters commenting on the proposed rule also included comments on the draft regulatory guide. Responses to these comments provided below address the public comments on the draft guide as well as on the proposed rule.

Comments on the Proposed Rule

The Commission receives 53 letters commenting on the proposed rule.² Forty-five of these were from the nuclear industry, comprised of electric utilities, consortiums of electric utilities, vendors, a trade association, and an architect/engineering firm. Other letters were submitted by the Union of Concerned Scientists, the Department of Nuclear Safety of the State of Illinois, a representative of the Professional Reactor Operator Society, a citizens group, a consultant, and three individuals. Largely, the industry comments were opposed to generic rulemaking to resolve the station blackout issue. The Nuclear Management and Resources Council (NUMARC), formerly the Nuclear Utilities Management and Resources Committee, submitted, along with its comments on the proposed rule, a set of four industry initiatives that it believes

would resolve this issue without rulemaking. Thirty-nine of the industry letters supported NUMARC's submittal. NUMARC proposed a fifth initiative (see item 21) by letter dated October 6, 1987. On the other hand, the Union of Concerned Scientists, the Illinois Department of Nuclear Safety, and the citizens group supported the Commission's objective in the proposed rule, but did not believe the rule and guidance associated with the rule went far enough to reduce the possibility of a serious accident that could be initiated by a total loss of ac power.

Every letter was reviewed and considered by the staff in formulating the final resolution of USI A-44. Because of the large number of comments, it was not practical to prepare formal responses to each one separately. However, since many comments were on similar subjects, the discussion and response to the comments have been grouped into the following subjects:³

1. Quality classification of modifications.
2. Whether the backfit analysis adequately implements the Backfit Rule.
3. Cost-benefit and whether § 50.63 meets "substantial increase in the overall protection of the public health and safety".
4. Whether NRC should require substantial improvements in safety that go beyond those proposed in this rulemaking.
5. The need for generic rulemaking.
6. Applicability of the proposed § 50.63 to specific plants.
7. Plant-specific features and capabilities.
8. The source term used to estimate consequences.
9. Specificity on the extent of required coping studies.
10. Acceptable duration for coping with a station blackout.
11. Credit for alternate or diverse ac power sources.
12. Trends on the reliability of ac power sources.
13. Sharing of emergency diesel generators between units at multi-unit sites.
14. Certification of the definitions of station blackout and diesel generator failure.
15. Specificity and clarification of requirements.
16. Technical comments on NUREG-1032.
17. Relationship of USI A-44 to other NRC Generic Issues.
18. An alternative of plant-specific probabilistic assessments.
19. Procedures and operator actions during station blackout.
20. Schedule provisions in the proposed § 50.63.
21. Industry initiatives.

The comments and responses to each of these subjects are presented on the following pages.

² Copies are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street, NW., Washington, DC.

³ The first four subjects are ones on which the Commissioners specifically requested public comments when the proposed rule was published.

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1. Quality Classification of Modifications

The Commission requested comments on whether the staff should give further consideration to upgrading to safety grade the plant modifications needed (if any) to meet the proposed rule. Upgrading to safety grade would further ensure appropriate licensee attention is paid to maintaining equipment in a high state of operability and reliability.

Comments—The prevailing view by industry on this subject is represented by the following comments submitted by NUMARC:

Quality classification is unnecessary—Equipment used to prevent or respond to a station blackout should be sufficiently available and operable to meet its required function. To this extent, the Commission's desire that appropriate attention be paid to maintaining a sufficiently high state of operability and reliability is appropriate. The point of departure begins with the method for achieving this objective. Specifically, by itself, a "safety grade" classification scheme does not solely equate with high states of equipment operability and reliability. Such classification systems too often can become a documentation exercise more than a process for providing the requisite level of system functionality.

Duquesne Light agreed with this view and expressed the following comments:

Any plant modifications or additional equipment required to meet the proposed rule should not be specified safety grade. For equipment which is to be manually started and placed in service for testing or in the event of a loss of power condition there is no necessity for specifying safety grade since adequate reliability can be obtained through normal surveillance testing and the proper maintenance of commercial power plant equipment. The cost difference in safety grade vs. commercial grade modifications is significant and must be emphasized.

The opposite point of view was taken by the Illinois Department of Nuclear Safety.

No credit should be given for the capability of equipment to respond to a station blackout unless the equipment was originally designed, constructed, inspected, performance tested, qualified, certified for the intended safety-related purpose, and the equipment is maintained to the highest industry safety standards.

Gulf States Utilities commented,

The proposed rule does not provide sufficient direction on the quality classification of plant modifications that may be required to meet the rule. . . . the quality classification of plant modifications implemented to meet the proposed rule should be commensurate with classification of the system they support.

Response—The proposed § 50.63 does not specifically address the topic of safety classification of plant

modifications; however, detailed guidance is provided in Regulatory Guide 1.155 dealing with quality assurance and equipment specifications for non-safety-related equipment. Any safety-related equipment used either presently, or in modifications resulting from this rule, should meet the criteria currently applied to such equipment.

The technical analyses performed for USI A-44 (NUREG-1032) show that plant-centered events (i.e., those events in which design and operational characteristics of the plant itself play a role in the likelihood of loss of offsite power), and area- or weather-related events (e.g., grid reliability or external influences on the grid) are the dominant causes of loss of offsite power. Neither seismic events nor events related to single failure causes were found to be major contributors to loss of offsite power. Therefore, both the staff's findings and public comments received do not support an explicit need for plant modifications for coping with station blackout to be seismically qualified.

The substantial increase in protection sought by this rule can be achieved by modifications which meet criteria somewhat less stringent than generally required by safety grade criteria. Safety-related equipment modifications to meet all safety-grade-related criteria would be more burdensome and expensive and would likely achieve only a very small further reduction in risk. The major contributors to the residual risk of loss of offsite power are adequately dealt with by modifications which conform to the quality assurance and equipment specification guidance provided in Regulatory Guide 1.155.

2. Whether the Backfit Analysis Adequately Implements the Backfit Rule

In addition to comments on the merits of the proposed rule, the Commission specifically requested comments on whether the backfit analysis for this rule adequately implements the Backfit Rule, § 50.109 of 10 CFR Part 50.

Comments—The Commission received two differing views in response to this request. On one hand, NUMARC expressed the view that the proposed rule does not meet the backfit rule standard because the analysis of the factors set forth in § 50.109(c) were not adequately considered by the staff. Specifically, NUMARC stated:

1. Installation and continuing costs associated with the backfit have been underestimated.

2. Potential impacts on radiological exposure of facility employees should be further addressed.

3. The relationship to proposed and existing regulatory requirements should be considered further.

4. Potential impacts of differences in facility, type, design, or age should be considered further.

5. The reduction in risk from offsite releases to the public has been overestimated.

On the other hand, the Ohio Citizens for Responsible Energy (OCRE) and the Union of Concerned Scientists commented that the backfit rule should not apply to the proposed rule. OCRE took the position that "application of the backfit rule to [NRC] rulemakings . . . is plainly illegal," and the Commission is not empowered to consider costs to licensees in deciding whether to impose new requirements. The Union of Concerned Scientists commented that the cost-benefit analysis should not be applied in this case because safety improvements are needed to secure compliance with existing NRC regulations, specifically General Design Criterion 17, Electric Power Systems (Appendix A to 10 CFR Part 50).

Response—NUMARC's comments on the backfit analysis were taken into account by the staff in revising the draft version of NUREG-1109, "Regulatory Backfit Analysis for the Resolution of Unresolved Safety Issue A-44, Station Blackout," and a separate appendix that addresses the factors in § 50.109(c) was added to that report. All but Item 2 above are on the same subjects as letters from other commenters and are discussed in more detail under subjects 3 (Item 1), 6 (Item 4), 8 (Item 5), and 17 (Item 3) in this section. NUMARC's Item 2, the potential impact on radiological exposure of facility employees, would need to be assessed in detail only if it were a major factor in the value-impact analysis. The effect of radiological exposure on facility employees, if any, would be extremely small in comparison to the reduction in radiological exposure to the public from accident avoidance. Therefore, this factor would have no impact on the overall value-impact analysis.

Contrary to OCRE's and the Union of Concerned Scientists' comments, the Commission may subject the rulemaking process to internal controls. Moreover, the Commission is empowered to consider the costs of incremental safety improvements which go beyond the level of safety necessary to ensure no undue risk to the public health and safety. See *UCS, et al., v. NRC*, D.C. Cir. Nos. 85-157 and 86-1219 (August 4, 1987). The improvements embodied in § 50.63 go beyond the level of safety necessary to ensure no undue risk.

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Finally, contrary to the Union of Concerned Scientists' comment on GDC 17, new station blackout measures cannot be imposed on licensees as a matter of compliance with GDC 17, under the compliance exception in the backfit rule, § 50.109(a)(4)(i). GDC 17 does not explicitly require that each plant be able to withstand station blackout for a specified time, or that each licensee perform a coping assessment and make whatever modifications may be necessary in the light of that assessment. Nor are any of these highly specific requirements logically compelled by any part of GDC 17. Moreover, GDC 17 has never been interpreted by the staff or the Commission to contain these specific requirements. Thus, to impose them under GDC 17 would amount to a backfit which resulted from a new staff and Commission interpretation of GDC 17.

The issue in this rulemaking is whether some additional protection is warranted beyond that already provided. The Commission is entitled to inquire, and seek public comment on, whether additional safety measures should be imposed where there is a substantial increase in the overall protection of public health and safety and the cost of implementation is justified in view of this increased protection.

3. Cost-Benefit Analysis and Whether § 50.63 Meets the "Substantial Increase in the Overall Protection of the Public Health and Safety"

Chairman Zech and Commissioner Roberts requested comments on the analysis of cost benefit, value impact, and safety improvements and the station blackout standing on the overall risk (e.g., is the reduction of risk only a small percentage of the overall risk, or is it a major component of an already small risk?). Chairman Zech and Commissioner Roberts were particularly interested in specific comments assessing whether or not this proposal meets the "substantial increase in the overall protection of the public health and safety" * * * threshold now required by the backfit rule.

Comments—(A) One of the major comments by industry on the cost-benefit analysis was that the costs of implementing the proposed requirements have been underestimated. NUMARC and the Atomic Industrial Forum (AIF) commented that the cost estimates for hardware modifications reported in NUREG/CR-3840, "Cost Analysis for Potential Modifications To Enhance the Ability of a Nuclear Plant To Endure Station Blackout," were too

low. Commonwealth Edison and other utilities felt that performance of an analysis to determine the maximum duration a nuclear plant could cope with a station blackout would be substantially costlier than what is estimated in NUREG-1109. Industry also expressed concern that the interpretations associated with the proposed rule could lead to substantial costs above those addressed by the NRC staff in its backfit analysis. AIF commented that "The estimate of 120 NRC man-hours per plant [for NRC review] * * * appears inadequate to account for technical review and evaluation of the determination of maximum coping capability and of the description of station blackout procedures which the rule would require each licensee to submit."

(B) Several commenters expressed the view that the NRC failed to consider all the risks associated with a station blackout in its value-impact assessment. The Union of Concerned Scientists thought independent failures, in addition to failures that lead to a station blackout, should be included. One individual stated that "both NRC reports [NUREG-1109 and NUREG-1032] are completely deficient in that neither look at sabotage." OCRE commented that seismic events should also be considered.

(C) With respect to safety improvements and overall risk, different points of view were expressed. On one hand, NUMARC commented that, while the risk reduction might be large for a limited number of plants, the risk reduction associated with the majority of plants will be small. Thus, as a general matter, the reductions in risk offered by the proposed rule constitute a small percentage of the overall risk, a risk which is already small (and acceptable). AIF stated that there is no standard by which to conclude that "substantial additional protection will be realized."

A different view was expressed by the Union of Concerned Scientists who stated that "station blackout is clearly a major component of the total risk posed by operating nuclear plants. The magnitude of the total risk is largely unknowable due to the enormous uncertainty which surrounds probabilistic assessments."

Response—(A) In order to adequately respond to industry's comments above, the staff and NRC contractors reviewed the cost estimates associated with implementing the station blackout rule. Based on this review, the estimated costs for hardware modifications were reviewed and are in the range of from 20

percent to almost 140 percent greater than the estimates in NUREG/CR-3840, depending on the specific modification considered. On average, the cost estimates for hardware backfit were found to be approximately 80 percent greater than estimated in NUREG/CR-3840. However, the cost estimates in NUREG/CR-3840 were not used by the staff in the value-impact analysis in the draft version of NUREG-1109 where estimates approximately 100 percent greater than the NUREG/CR-3840 estimates were used. Therefore, the revised cost estimates used in the final value-impact analysis are not significantly different from the estimates used in the draft version.

Industry's comments on the costs to assess a plant's capability to cope with a station blackout were based on the proposed rule that required an assessment of the maximum coping capability and the potentially unbounded nature of such an assessment. Based on public comments, the Commission has revised the final rule to modify the requirement for licensees to determine the maximum coping capability. (See response to public comments in subject number 9.) Instead, a coping assessment is required only for a specific duration. The cost for such a study is estimated to be from 70 to 100 percent higher than the original estimates by the staff, and these revised costs are used in the final value-impact analysis.

The staff revised its estimate of the resource burden on NRC for review from 120 to 175 person-hours per reactor. This revision was based on technical review required for other comparable NRC activities.

(B) The technical analyses performed for USI A-44 indicated that the contribution to core damage frequency from independent failures, in addition to failures that must occur to get to a station blackout, is low. Likewise, results of USI A-44 studies and other probabilistic risk assessments have shown that, for station blackout sequences, the contribution to core damage frequency from seismic events is low.

Not all events can be analyzed on a probabilistic basis. Sabotage is an example. Even though sabotage was not explicitly considered in the staff's value-impact analysis, it is discussed in NUREG-1109 under other considerations. These considerations support the conclusion that a station blackout rule will provide a substantial safety benefit.

(C) The revised value-impact analysis performed for the resolution of USI A-44

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indicates that there are substantial benefits in terms of reduced core damage frequency and reduced risk to the public that result from the station blackout rule, and the costs are warranted in light of these benefits. The best estimate for the overall value-impact ratio is 2,400 person-rem per million dollars. Even if those plants with the highest risk (and therefore the greatest risk reduction) were not considered, the value-impact ratio for the remaining plants is still favorable (i.e., about 1,500 person-rem per million dollars).

Analyses reported in NUREG-1150, "Reactor Risk Reference Document" (draft issued for comment in February 1987),⁴ indicate that station blackout is a dominant risk contributor to overall residual risk for most of the six plants analyzed. These results support the comment by the Union of Concerned Scientists in response to the Commissioner's request for comments on this subject.

4. Whether NRC Should Require Substantial Improvements in Safety that Go Beyond Those Proposed in this Rulemaking

Commissioner Asselstine requested comments on whether the NRC should require substantial improvements in safety with respect to station blackout, like those being accomplished in some other countries, which can be achieved at reasonable cost and which go beyond those proposed in this rulemaking.

Comments—NRC received eight letters that included comments on this subject. Five of these were from the nuclear industry, none of which felt that the approach to station blackout taken in European countries should be used to justify safety improvements that go beyond the proposed § 50.63. The main justification for industry's argument is that foreign countries may have reasons for requiring activities that differ from, or exceed, those in the U.S. For example, Washington Public Power Supply Systems (WPPSS) commented, "It is not apparent that the details of U.S. grid stabilities and onsite power reliabilities are substantially similar enough to those found abroad to warrant a simple adoption of these [European] measures."

In another comment from industry on this subject, NUMARC stated that there are several reasons why many of the features for coping with a station blackout in new French nuclear power plants may already exist at most U.S.

plants. In fact, they said, "The French approach to station blackout does not appear to depart significantly from current regulatory approaches in the U.S." Similarly, AIF stated, "The assertions of extensive station blackout coping capability at foreign (notably European) nuclear power plants are not sufficiently substantiated to serve as even part of the basis for the proposed requirements."

Three other letters (Union of Concerned Scientists, OCRE, and Illinois Department of Nuclear Safety) supported the NRC rulemaking to require all plants to be able to cope with a station blackout, but urged the Commission to go beyond the proposed rule. The Illinois Department of Nuclear Safety stated that:

The goal of holding the expected frequency of core damage from station blackout to 10^{-5} per reactor-year is not sufficiently stringent. With relatively modest modifications to the proposed rule, a frequency of 10^{-7} appears achievable at reasonable cost. Specifically, the rule should require no less than 20 hours decay heat removal capacity instead of only four or eight hours in the proposed rule, in the event of a blackout.

Response—The staff agrees with industry's comments that foreign countries may have valid reasons for imposing requirements that differ from or exceed those in the U.S. For example, it appears that there is a higher frequency of losses of offsite power in France than in the U.S. This experience, along with French safety objectives, led the French to design their new standard nuclear power plants to be able to cope with a very long duration station blackout (i.e., up to three days). The French safety approach and their station blackout design features are documented in NUREG-1206, "Analysis of French (Paluel) Pressurized Water Reactor Design Differences Compared to Current U.S. PWR Designs," June 1986.

The Commission believes that the staff has adequately considered foreign approaches in preventing core melt from station blackout in developing the resolution of USI A-44. Although the rule requires plants to be able to cope with station blackout for a specific duration, that duration is not specified in the rule. Guidance to determine an acceptable duration is included in Regulatory Guide 1.155. This guidance should apply to most plants, but if there were adequate justification, different requirements (either more or less stringent than the regulatory guide) could be applied to specific plants. The use of alternate ac sources provides a means to achieve further incremental decreases in core melt frequency.

5. The Need for Generic Rulemaking

Comments—Five letters from the nuclear industry commented that generic rulemaking is not necessary to resolve the station blackout issue. Their reasons for this issue were as follows:

A generic rulemaking is inappropriate since the historic number of sites experiencing a loss of all offsite power is small. (Texas Utilities)

The station blackout issue should be handled on a plant-specific basis and does not need to be resolved by generic rulemaking. Each plant has unique probability for a loss-of-power event based on transmission system, location of plant, and onsite power systems. (Duquesne Light)

The Commission need not pursue generic rulemaking in order to resolve a non-generic issue. In the proposed station blackout rule, the number of plants of concern is acknowledged to be limited. (NUMARC)

Station blackout has been found not to be a generic issue. Station blackout risk is plant specific and, according to the staff's own analyses, the proposal requirements are expected to result in modifications at no more than a few facilities, if at any. Requiring all licensees to undertake extensive analyses under the provisions of the proposed rules when only a small group of plants may have a need for remedial action is not appropriate. (AIF)

Response—The Commission believes that a rule is appropriate to ensure that station blackout is addressed at all nuclear power plants. The plant-specific features that contribute to risk for station blackout (e.g., diesel generator configuration, probability of loss of offsite power) are considered by the staff in the station blackout regulatory guide to determine an acceptable coping duration for each plant. Even though not all sites have experienced a loss of offsite power, there is not sufficient assurance that such events would not occur in the future. Since historic experience has shown that a total loss of offsite power occurs about once every 10 site-years, and many nuclear plants have operated for less than 10 years, it is not surprising that some plants have experienced a loss of offsite power while others have not.

Even though it is likely that many plants will not need hardware modifications to comply with the rule, the assessment of station blackout coping capability for a specific duration and implementation of associated procedures will affect a safety benefit for all plants. The "limited number of plants of concern" in NUMARC's letter refers to those plants having the highest risk from station blackout (i.e., those that would need hardware modifications). Without a plant-specific assessment, these plants can not be

⁴ Free single copies may be obtained from the Division of Information Support Services, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

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identified. Even excluding these plants from consideration, the staff's analysis has shown that the improvements in safety associated with the rule are consistent with backfit considerations set forth in § 50.109.

6. Applicability of the Proposed § 50.63 to Specific Plants

Comments—Four letters included comments or questions regarding the applicability of the rule to specific plants. For example, does the rule apply to high-temperature gas-cooled reactors (HTGR) (i.e., Fort St. Vrain)? What about TMI-2 or plants that are near completion but will not have an operating license prior to the amendment's effective date? Houston Power and Lighting Company wrote:

Proposed Section 50.63 provides scheduler guidance for implementing station blackout-related modifications on plants that already hold operating licenses or will be licensed to operate prior to the effective date of the amendment. Plants who may be NTOL's [near-term operating license] but will not be licensed prior to the amendment's effective date should be accorded the same compliance period under parts (c) and (d) of this section. Otherwise this proposed rule could be interpreted to imply that plants not licensed prior to the effective amendment date must comply with the rule and make all necessary modifications prior to receiving an O.L. [operating license]. The rule should be amended to address plants which are scheduled to receive an O.L. within a short time following implementation of this rule.

Response—Rather than identifying specific plants for which the rule does not apply, § 50.63(a) specifies when it does apply (i.e., "each light-water-cooled nuclear power plant licensed to operate"). Since Fort St. Vrain is an HTGR, the generic rule would not apply. Station blackout will be considered individually for that plant based on its unique design. Since TMI-2 is not licensed to operate, likewise the rule would not apply to that plant. Any plant licensed to operate after the date the rule becomes effective will comply with the same 270-day schedule for information submittal applied to plants previously licensed. This affords NTOLs the same compliance features as plants already licensed to operate.

7. Plant-Specific Features and Capabilities

Comments—A number of utilities described plant-specific features and capabilities that reduced the risk posed by a station blackout event compared to the staff's analysis. Examples of such features are given below.

- Availability of alternate, independent ac power sources such as

diesel generators, gas turbines, or nearby "black start" ac power sources.

- Extremely reliable offsite power supplies because of multiple right-of-ways or underground feeders to back up above ground transmission lines.

- Dedicated shutdown systems and associated diesel generators to meet the fire protection requirements of Appendix R to 10 CFR Part 50.

- Common or shared systems between two units at multi-unit sites such as direct current (dc) power, auxiliary feedwater, or diesel generators.

Response—The analyses performed for USI A-44 clearly show that plant-specific features do affect the risk from station blackout, and the station blackout regulatory guide takes this into account in providing guidance on different acceptable coping durations depending on the most significant of these features. Those plants with extremely reliable offsite and onsite ac power supplies need only have a very short (e.g., 2-hour) coping duration to be acceptable. Plants that have a dedicated shutdown system with its own independent power supply could take credit for this system to cope with a station blackout. The final rule and Regulatory Guide 1.155 have been clarified to give credit for alternate ac power supplies (see response to subject 11).

Therefore, the Commission believes that for almost all sites, plant-specific differences have been adequately accounted for in the resolution of USI A-44, but the door is open to licensees who believe their plants have additional capability that should be considered by the staff in demonstrating compliance with the rule.

8. The Source Term Used To Estimate Consequences

Comments—NUMARC and others in the industry commented that the consequences of offsite releases that would result from a station blackout event are overestimated, and new source term information would lead to the prediction of much lower consequences for this event. Several commenters felt that the approach taken by the staff to estimate consequences of a station blackout event was improper—decreasing by a factor of three the estimated consequences of the siting source term (SST1) from NUREG/CR-2723, "Estimates of the Financial Consequences of Nuclear Power Reactor Accidents" (September 1982).

AIF felt that "implementation of any requirements resulting from the resolution of USI A-44 should be deferred until the results of the source

term research can be taken into account." They based this statement on the premise that if the consequences used in the staff's value-impact analysis were reduced by a factor of 10, none of the alternatives would be feasible.

The Union of Concerned Scientists expressed a different point of view in their letter which said "• • • available evidence indicates that the consequences of an accident involving station blackout may be even worse than those estimated either in WASH-1400 or the NRC's more recent studies."

Response—NRC has had an extensive research effort underway since about 1981 to evaluate severe accident source terms. The staff has reviewed the results of this research to take into account the public comments received on this subject. Since there is still a great deal of uncertainty regarding source terms and associated consequences, the staff revised its value-impact analysis for USI A-44 considering a range of estimates for consequences of a station blackout.

The NRC research on severe accident source terms has resulted in the development of significant new analytical tools by NRC contractors, as discussed in NUREG-0956, "Reassessment of the Technical Bases for Estimating Source Terms," July 1986. The analytical methods developed, generally referred to as the Source Term Code Package (STCP), have been used to analyze a number of severe accident sequences for five reference plants, namely: Peach Bottom, a BWR Mark I design; Sequoyah, a PWR ice condenser; Surry, a PWR with a sub-atmospheric containment; Grand Gulf, a BWR with a Mark III containment; and Zion, a PWR with a large dry containment (NUREG-1150, "Reactor Risk Reference Document," Draft for Comment, February 1987).

The results of these analyses show that releases from station blackout sequences can be expected to vary significantly depending upon the plant and the specific sequence. Although generalizations are difficult, it appears that calculations using the STCP yield release fractions for most of the sequences range from about one third of an SST1 release (for the case of Surry, without condensation) to roughly one order of magnitude less than this. However, the uncertainties in our present understanding also do not preclude the possibility of a large release, approaching that of the SST1 estimate.

To determine the consequences in terms of person-rem, given the above range of release fractions, data taken from NUREG/CR-2723 indicate that the

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variations in person-rem associated with releases of magnitude SST1, SST2 and SST3 are virtually identical to the variations in latent cancer fatalities for the same three releases. Hence, the estimated change in latent cancer fatalities with release fractions provides a reliable indication of change in person-rem as well.

Table 10 in NUREG/CR-2723 presents variations in estimated latent cancer fatalities associated with changes in SST1 release fractions (for all elements except noble gases). This table shows that a release fraction of one-third of an SST1 release would yield a value of about 50 percent of the latent cancer fatalities (and person-rem) of an SST1 release. Similarly, a release fraction of one-third of an SST1 release would yield an estimated person-rem of about 15 percent of that associated with an SST1 release. Consequently, for value-impact calculations, the staff estimated the range of consequences of station blackout, in terms of person-rem, to be from 0.15 to 0.5 of the estimated person-rem of an SST1 release. As noted, the original value-impact analysis was based on 0.3 times the estimated person-rem of an SST1 release.

With regard to a possible delay in the resolution of USI A-44 until "better" source terms become available, key considerations appear to be when better source terms are likely to become available and to what degree uncertainties in phenomenology as well as differences between investigators will be resolved. Although research on source terms is expected to continue well into the future, improvements in our knowledge are expected to be largely evolutionary beyond this point, in that the major phenomena appear to have been accounted for, at least in a first-order fashion, both in NRC as well as industry models. Resolution and narrowing of the remaining uncertainties would also benefit from improved experiments and analytical models that are likely to become available gradually. For these reasons, significantly better source terms than those presently available are likely to be forthcoming only after a number of years. Since the range of severe accident source terms and consequences suggested above from estimating station blackout sequences is sufficiently broad to cover likely improvements in source term knowledge, the resolution of USI A-44 should not be delayed.

9. Specificity on the Extent of Required Coping Studies

Comments—Several letters by industry expressed concern that the studies necessary to demonstrate that a

plant can cope with a station blackout are not well defined and could potentially be unbounded. These comments focused on two main points. First, the proposed rule required plants to determine the maximum duration the plant could cope with a station blackout, yet the draft regulatory guide included specific guidance on acceptable coping durations (e.g., 4 or 8 hours). Determining the maximum duration, rather than assessing the plant's capability for a specific acceptable duration, could be an open-ended requirement. Along these lines, NUMARC stated:

Unless the required coping demonstration is specifically bounded by clearly stated definitions, assumptions, and criteria, there could conceivably be hundreds of supporting special effects analyses which licensees may have to consider as a result of the exercise of discretion by individual staff reviewers. Under the rule as proposed, licensees cannot ascertain the ultimate requirements they will be expected to meet (including the potential plant modifications they will need to make) to demonstrate compliance.

Second, industry also commented on the potential open-endedness of analyses to determine the operability of equipment in environmental conditions resulting from a station blackout (e.g., without heating, ventilation, and air conditioning). Unless these analyses were well defined, industry felt the analyses could be much more costly than estimated by the staff. However, NUMARC made the following statement relating to the need for detailed prescriptive requirements by NRC that appears to contradict their earlier statement.

The point * * * is not that regulations must be prescriptive by their very nature. Prescriptive regulations, which outline in detail exactly what steps are required by licensees to satisfy a proposed regulation, are, in many instances, unnecessary and counterproductive.

Response—With regard to the proposed requirement that each plant determine its maximum duration for coping with station blackout, the staff agrees with the industry comments. First of all, it would be difficult to adequately define "maximum duration" in this sense. Second, if licensees determine that their plants can cope with a station blackout for a specified duration and restore ac power through an acceptable coping analysis, the additional safety benefit gained from simply the knowledge that a longer, or "maximum duration," coping duration exists is small. Third, the costs for assessing "maximum duration" will be higher since more extensive analyses will be required to analyze a transient which

would go beyond the coping analysis for a specified duration and recovery from station blackout. Therefore, the rule and regulatory guide have been revised accordingly to delete the requirement for licensees to determine a plant's maximum coping capability.

With regard to the comments on assessments to determine equipment operability during a station blackout, the staff feels strongly that such assessments are necessary to determine a plant's response to station blackout. By deleting the requirement to determine a plant's "maximum" coping capability, the assessment of equipment operability would not be as costly as assumed by industry. Guidance on acceptable coping assessments is provided in the station blackout regulatory guide. Also, guidelines to evaluate the effects of loss of ventilation under station blackout conditions are provided in Appendix E of NUMARC-8700, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors." These efforts provide additional definitions, criteria, and standards for licensees' assessments of equipment operability without the need for "prescriptive regulations" by NRC.

In order to further evaluate industry's comments on this subject, NRC requested Sandia National Laboratories to identify specific tasks necessary to determine operability of equipment during a station blackout and to estimate the cost to perform these tasks. Results of this study were used in the revised value-impact analysis performed for this issue ("Equipment Operability During Station Blackout Event," NUREG/CR-4942).

10. Acceptable Duration for Coping with a Station Blackout

Comments—Several comments with differing views were directed at guidance in the draft regulatory guide on acceptable station blackout coping durations in order for plants to comply with the proposed rule.

Washington Public Power Supply commented that "it should be possible for certain utilities to demonstrate [an acceptable] zero hour blackout." One individual recommended "that a 30 minute period be a margin, and that no duration under 4 hours be accepted by the staff." NucleDyne Engineering commented that "advanced reactors should require the capability to safely withstand a station blackout of at least 8 hours," and the Illinois Department of Nuclear Safety wrote that "the rule should require no less than 20 hours

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decay heat removal capability instead of only 4 or 8 hours."

Response—Although diverse comments were received on this subject, none provided supporting analysis or information to back up the opinions expressed. However, the staff did reanalyze the estimated risk from station blackout events for different plant- and site-related characteristics and revised its guidance on acceptable coping duration accordingly based on a goal of limiting the average contribution to core damage from station blackout to about 10^{-5} per reactor-year. Most plants would still need a 4- or 8-hour coping capability. Those few plants with the most redundant onsite emergency ac power system, coincident with significantly lower than average expected frequency of loss of offsite power, would need only a 2-hour capability to be acceptable. Any plant with minimum redundancy in the onsite emergency ac power system coincident with low reliability and a significantly higher than average expected frequency of loss of offsite power would need to substantially improve its ac power reliability or be able to cope with a station blackout for 16 hours.

11. Credit for Alternate or Diverse AC Power Sources

Comments—Ten letters from the utility industry commented that more credit should be allowed for the availability of alternate power sources such as onsite gas turbines. The comments below represent the utilities' viewpoint.

The station blackout rule should be clarified to allow credit for diverse and very reliable offsite power sources or diverse and very reliable onsite electrical generation. (Public Service Company of Colorado)

The option of providing an additional alternate source of ac power is eliminated by [the proposed resolution]. The inconsistency in this approach can best be understood by considering an example at a generic nuclear power station. (Toledo Edison)

If the licensee were to provide an additional independence diesel generator capable of providing the necessary ac power to prevent station blackout, the licensee . . . would still be required to withstand at least 4 hours without ac power. They would receive no credit for the additional diesel generator in the coping analysis. If the licensee were to use that same diesel engine to power a charging pump, even though it would be of less significance to mitigation of reactor core damage than the diesel generator, the licensee could take credit for it in coping with the blackout. (Toledo Edison)

Since a diesel-powered charging pump will not provide for equipment loading flexibility, lighting, ventilation, instrumentation, etc., it is obviously of lower value than an additional source of ac power. The fixed category

approach taken in [the proposed resolution], however, will not permit taking credit for the same diesel engine when used as a generator though the actual reliability for the machine is the same. (Toledo Edison)

Response—The proposed regulation did not intend to ignore the alternative of adding additional power sources or taking credit for such sources if they already exist. For example, as specified in the regulatory guide, if a licensee added an emergency diesel generator to one of its plants that had minimum redundancy in the onsite emergency ac power system, the acceptable station blackout coping duration could be reduced. For some plants, however, adding a diesel generator would not result in a reduction in the acceptable coping duration, and the point made by Toledo Edison is a valid one. The rule and regulatory guide have been revised to clarify that alternate ac power sources are given credit to cope with a station blackout provided that certain criteria are met [e.g., independence, redundancy, high reliability, maintenance, and testing].

12. Trends on the Reliability of AC Power Sources

Comments—Five letters included comments on the reliability of ac power sources. Four letters from industry felt that improved ac power reliability should be factored into the staff's technical analysis. Examples of these comments include the following:

* * * the frequency of loss of offsite power activities has been decreasing * * * (Washington Public Power Supply System);

* * * offsite power availability in the absence of regulation has significantly improved over the past decade. [Southern California Edison Company];

[NUREG/CR-4347] * * * shows an improvement in diesel generator reliability over that shown in the earlier document [NUREG/CR-2989] (General Electric); and

Typically the reliability of onsite power systems increases during the first few years following startup. (Gulf States Utilities)

The Illinois Department of Nuclear Safety, on the other hand, felt that potential vulnerabilities still exist in onsite emergency ac power systems, and licensees should demonstrate that they have taken steps to reduce the probability of loss of ac power.

Response—The staff and its contractors have extensively analyzed the industry experience and trends in ac power reliability as documented in NUREG-1032, NUREG/CR-2989, NUREG/CR-3992, and NUREG/CR-4347. Trends have shown that two aspects of ac power reliability have improved somewhat—the reduced frequency of losses of offsite power due

to plant-centered events, and a slight improvement in average diesel generator reliability from 1976 through 1983. These factors have been taken into account in the staff's analyses and the resolution of USI A-44. However, data also demonstrate that there are practical limits on ac power reliability, and the defense-in-depth approach of being able to cope with a station blackout is warranted.

13. Sharing of Emergency Diesel Generators Between Units at Multi-Unit Sites

Comments—Several letters from industry stated that some plants with two units on a site have the capability to cross-tie electrical buses between units and therefore have improved flexibility in providing ac power. Since the magnitude of the electrical loads necessary to provide core cooling during a station blackout is significantly less than that required for a design basis accident, it could be possible to provide ac power to both units at the site using only a single diesel generator.

Response—The proposed rule and draft regulatory guide do not prohibit the approach discussed above. If licensees can demonstrate that such cross-tie capability exists, procedures are in place to accomplish the cross-tie and shed nonessential loads (if necessary), and no NRC regulations are violated (such as separation, minimum redundancy, and independence), then credit would be given for this capability as shown in Regulatory Guide 1.155 (i.e., reduced acceptable station blackout coping durations for greater diesel generator redundancy).

14. Clarification of the Definitions of Station Blackout and Diesel Generator Failures

Comments—(A) Three commenters from the utility industry recommended that the definition of station blackout in § 50.2 should be clarified to exclude ac power from the station batteries through inverters. This source of ac power from the station batteries would be available in the event of a loss of both the offsite and onsite emergency ac power sources (i.e., diesel generators).

(B) Several from industry commented that the definition of diesel generator failure should be clarified, particularly with respect to the treatment of short-term failures that can be recovered quickly. Sargent and Lundy Engineers commented that:

A definition of failure on demand for emergency diesel generators needs to be provided. Under the context of a station blackout, a diesel generator which fails to

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start automatically upon detection of an offsite power loss, but is successfully started manually from the main control room or from the local control panel, should not be considered a failure on demand.

Response—(A) The staff agrees with comment A and revised the definition of station blackout accordingly.

(B) Based on actual experience, failures of diesel generators to start due to failures in the auto-start system make up less than 20 percent of all diesel generator failures. Therefore, discounting these failures would not have a significant impact on overall diesel generator reliability statistics. However, the staff agrees in principle with comment B and has clarified the station blackout regulatory guide so that auto-start failures of diesel generators need not be counted in determining the failure rate if the diesel generator is capable of being started manually immediately after it does not start automatically.

15. Specificity and Clarification of Requirements

Comments—Public comments were received regarding the specificity and clarification of the proposed rule and draft regulatory guide. These ranged from general to specific comments as the following two excerpts indicate:

We are concerned that, if the proposed rule is adopted, the staff will promulgate regulatory guidance criteria which will be unrealistic and excessive, i.e., compounding the event with other accidents, imposing passive failure criteria, applying seismic, environmental qualification and other qualifications to equipment that could otherwise be used in response to such an event, etc. (Maine Yankee Atomic Power Company)

Definitions of P1 and P2 [in Table 3 of the draft Regulatory Guide] use frequency of extremely severe weather and severe weather interchangeably, thus creating confusion in the definition. (Washington Public Supply System)

Response—Some of the comments on this subject relate to other subjects discussed elsewhere in this section. Some comments were quite specific while others were general in nature or expressed views that were not substantiated with backup material. The staff has taken these comments into consideration and revised and clarified the rule and regulatory guide accordingly. Additional guidance is provided in NUMARC-8700 which has been reviewed by the staff and referenced in the regulatory guide as providing a method the staff finds acceptable for meeting the rule.

16. Technical Comments on NUREG-1032

Comments—In addition to comments on the proposed rule and draft regulatory guide, several letters contained comments on the staff's draft technical report, NUREG-1032, "Evaluation of Station Blackout Accidents at Nuclear Power Plants."

Response—NUREG-1032 was issued in draft form for public comment in May 1985 (50 FR 24332). The comments received were reviewed and considered by the staff and resulted in a re-evaluation of the technical analysis. Details of the specific comments and responses are not presented here. Rather, NUREG-1032 was revised extensively over the past year to address the public comments. In general, the overall conclusions on the risk from station blackout events did not change significantly as a result of the reanalysis. One of the major changes resulting from the reanalysis was a revision to the definitions of plant characteristics, especially the clustering of plants into site and weather-related groups (Appendix A in NUREG-1032). These changes are reflected in revisions to the guidance in the station blackout regulatory guide to determine plant-specific acceptable station blackout coping durations.

17. Relationship of USI A-44 to Other NRC Generic Issues

Comments—The major public comment regarding the relationship of USI A-44 to other NRC generic safety issues was that the proposed rule may not be necessary or should be postponed because of ongoing work to resolve related generic issues. Some comments were general in nature such as the following one from Southern California Edison Company:

Promulgation of a final station blackout rulemaking at this time will unnecessarily complicate the final resolution of related generic technical issue The NRC must develop and implement a program to coordinate the resolution of all power-related generic issues prior to finalizing any individual proposed rule.

AIF suggested that the implementation of any requirements for station blackout be deferred until the requirements from USI A-45, Shutdown Decay Heat Removal Requirements, are known and until the effect of source term changes can be evaluated.

NUMARC mentioned specific proposed and existing regulatory requirements that should be considered because they could reduce the need for a station blackout rule (e.g., B-56, Diesel Generator Reliability, and GI 23, Reactor

Coolant Pump Seal Failures). Other related issues mentioned in the public comments were A-30, Adequacy of Safety-Related DC Power Supplies, and implementation of safe shutdown facilities to meet the fire protection requirements of Appendix R.

Response—The question that needs to be addressed is "should a requirement be imposed now to reduce risk, or should it be postponed until related issues are resolved sometime in the future?" Potentially, this could result in substantial delays, thereby not resolving generic safety issues in a timely manner. The staff has considered the resolution of USI A-44 in light of the related issues mentioned in the comments. Although these issues are identified as separate tasks within NRC, they are all managed in a well established program that coordinates all related issues. A brief discussion of the most relevant issues is presented below. (Additional information is provided in NUREG-1109, "Regulatory Analysis for the Resolution of Unresolved Safety Issue A-44, Station Blackout.")

Resolution of USI A-45 will occur at some time following issuance of the station blackout rule (§ 50.63) and after plant-specific station blackout coping evaluations have been performed by licensees per NUMARC/NUCSBO Initiative 5, utilizing guidelines provided in NUMARC-8700. Further, the resolution of USI A-45 is expected to be highly plant-specific and focused on loss of decay heat removal considerations from other causes beyond station blackout. Utilization will be made of A-44 evaluations (as applicable) and any plant equipment modification needs identified from A-45 will be carefully evaluated to maximize effective use of previously identified A-44 equipment needs.

Maintaining emergency diesel generator reliability, the purpose of B-56, is an integral part of the resolution of USI A-44. However, the Commission believes that additional defense-in-depth will achieve a substantial increase in protection to public health and safety.

The resolution of GI 23 (reactor coolant pump seal leakage) deals with loss of reactor coolant system inventory and associated degraded core conditions. USI A-44 deals with station blackout induced effects, which result in loss of ac power, thereby impacting a broader spectrum of plant equipment and safety-related functions. Although the resolution of GI 23 will contribute to establishing a higher level of assurance that seal leakage will be minimized (thereby minimizing the need for power

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to replace water inventory losses over the station blackout duration and recovery phase), resolution of GI 23 by itself will not address the broader scope of USI A-44 safety concerns.

Some licensees have implemented dedicated shutdown systems that are independent of normal and emergency ac power to meet Appendix R requirements. If applicable, these features would be credited in the resolution of USI A-44 by providing the capability to cope with a station blackout.

Thus, the resolution of USI A-44 is coordinated with related generic issues, and implementation of a final resolution should not be delayed further. (Response to comments on the effect of source term changes is included in subject number 8.)

18. An Alternative of Plant-Specific Probabilistic Assessments

Comments—Several utilities suggested that, in lieu of the requirements in the rule, licensees should be permitted to submit plant-specific evaluations to demonstrate that the frequency of core damage from station blackout events is 10^{-5} per reactor-year or less. In a similar vein, the suggestion was made that NRC should specify a target level of reliability for ac power systems in order to satisfy NRC's criteria for core damage frequency. A few licensees submitted limited probabilistic assessments to show that for some plants station blackout could have a very small probability of severe consequences.

Response—The Commission does not preclude licensees from submitting plant-specific probabilistic assessments to support a determination that station blackout would have a very small probability for causing core damage. However, the requirements of the rule must be met. The Commission would observe that the use of probabilistic assessments was important as input to the regulatory decisionmaking that culminated in the station blackout rule and related guidance. As expressed in the Commission's Safety Goal Policy statement of August 1986 (51 FR 28044), the Commission has acquired a reasonable degree of confidence about the usefulness and value of probabilistic assessments in assisting regulatory decisionmaking on complex safety issues. In short, such assessments are of value in complementing and focusing the more traditional and deterministic defense-in-depth approaches. On the other hand, any licensee must decide whether or not its plant-specific ac power configuration and other related equipment are sufficiently unique to

merit the conduct and submittal of a probabilistic assessment as part of achieving compliance of § 50.63. The Commission's experience also indicates that probabilistic assessments are resource intensive and can be of marginal utility if their only end result is to delay rule compliance.

19. Procedures and Operator Actions During Station Blackout

Comments—(A) Several letters from industry commented that, in response to Generic Letter 81-04, "Emergency Procedures and Training for Station Blackout Events," dated February 21, 1981, utilities already have procedures in place to prepare plant operations for station blackout events. Owners' groups have established generic guidance for station blackout operating procedures for licensees to use in developing plant-specific procedures. A representative of the Professional Reactor Operator Society commented that:

Generic procedures are used by most operating facilities. These procedures are not carried into adequate depth of specific power plant operations. The industry has relied too heavily on generic procedures and has not given a real look at what specific steps must be taken. Extrapolation of these procedures must be required. Specific maintenance procedures must be established and followed.

(B) Other comments on procedures related to the timeliness of operator actions, both inside and outside the control room. Houston Lighting and Power suggested that:

In Section 3.1 (Part 6) [of the regulatory guide], the first sentence should be revised to read, "Consideration should be given to timely operator actions both inside and outside of the control room that . . . so that credit can be taken for existing equipment that may not have actuation and control from the control room."

Illinois Power Company recommended that:

. . . Section C.3.3, Item 3.a, of the proposed regulatory guide should be modified to read:

a. The system should be capable of being actuated and controlled from the control room, or if other means of control are required (e.g., manual jumping of control logics or manual operation of valves), it should be demonstrated that these steps can be carried out in a timely fashion.

Response—(A) Licensees may take credit for station blackout procedures already in place to comply with the station blackout rule. However, for the most part, these procedures were developed without having the benefit of a plant-specific assessment to determine whether a plant could withstand a station blackout for a specific duration. Therefore, these procedures may need to

be modified after licensees have determined an acceptable station blackout coping duration and evaluated their plant's response to a station blackout of this duration.

(B) The staff agrees with the comments related to operator actions outside the control room, and the regulatory guide was revised accordingly.

20. Schedule Provisions in Proposed § 50.63

Comments—Two letters contained comments on the proposed schedule in § 50.63. OCRE felt the scheduling provisions in the proposed rule were far too generous. One individual recommended that the schedule be modified to require licensees to submit, within 9 months of the date of the amendment, a list of modifications along with a proposed schedule to implement those modifications. (According to the proposed rule, licensees would not have to submit a schedule for implementing equipment modifications until after the staff received and reviewed licensees' submittals on their plant's acceptable station blackout duration.)

Response—The staff agreed in part with these comments, and the schedule was revised accordingly. Section 50.63(c)(1)(iii) now requires that licensees submit within 9 months after the rule is issued a list of equipment modifications and a proposed schedule for implementing them. A final schedule would be developed after NRC has reviewed the licensees' submittal of their plant's acceptable station blackout duration.

21. Industry Initiatives

Comments—In addition to comments on the proposed rule, NUMARC endorsed the following five initiatives⁵ to address the more important contributions to station blackout:

1. Each utility will review their site(s) against the criteria specified in NUREG-1109, and if the site(s) fall into the category of an eight-hour site after utilizing all power sources available, the utility will take actions to reduce the site(s) contribution to the overall risk of station blackout. Non-hardware changes will be made within one year. Hardware changes will be made within a reasonable time thereafter.

⁵ NUMARC initially proposed a set of four initiatives. The fifth initiative regarding the performance of a coping assessment was provided in NUMARC-8700, which was submitted by letter from J. Opelka (NUMARC) to T. Speis (RES) dated November 23, 1987. A copy is available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW, Washington, DC.

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2. Each utility will implement procedures at each of its site(s) for:

- a. Coping with a station blackout event,
- b. Restoration of ac power following a station blackout event, and
- c. Preparing the plant for severe weather conditions (e.g., hurricanes and tornadoes) to reduce the likelihood and consequences of a loss of offsite power and to reduce the overall risk of a station blackout event.

3. Each utility will, if applicable, reduce or eliminate cold fast-starts of emergency diesel generators for testing through changes to technical specifications or other appropriate means.

4. Each utility will monitor emergency ac power unavailability utilizing data utilities provide to INPO on a regular basis.

5. Each utility will assess the ability of its plant(s) to cope with a station blackout. Plants utilizing alternate ac power for station blackout response which can be shown by test to be available to power the shutdown busses within 10 minutes of the onset of station blackout do not need to perform any coping assessment. Remaining alternate ac plants will assess their ability to cope for 1 hour. Plants not utilizing an alternate ac source will assess their ability to cope for 4 hours. Factors identified which prevent demonstrating the capability to cope for the appropriate duration will be addressed through hardware and/or procedural changes so that successful demonstration is possible.

NUMARC previously opposed generic rulemaking and felt that the first four initiatives would resolve the station blackout issue.

Response—These five initiatives now include many of the elements that are included in the NRC resolution of USI A-44. The staff has followed up on the NUMARC initiatives through a series of meetings in 1986 through 1987. The result has been the development of NUMARC-8700 which provides guidelines and criteria acceptable to the staff. The procedures in NUMARC-8700 have been referenced in Regulatory Guide 1.155 as providing guidance acceptable to the staff for meeting the requirements of the rule. Table 1 in Regulatory Guide 1.155 provides a cross-reference to NUMARC-8700 and notes where the regulatory guide takes precedence. NUMARC's previous concerns have been addressed in the development of Regulatory Guide 1.155 and NUMARC-8700.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's rules in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment, and therefore, an environmental impact statement is not required. There are not any adverse environmental impacts as a result of the rule because there is no

additional radiological exposure to the general public or plant employees, and plant shutdown is not required so there are no additional environmental impacts as a result of the need for replacement power. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection and copying for a fee at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Mr. Warren Minners, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-7827.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. A copy of the regulatory analysis, NUREG-1109, "Regulatory/Backfit Analysis for the Resolution of Unresolved Safety Issue A-44, Station Blackout," is available for inspection and copying for a fee at the NRC Public Document Room, 1717 H Street NW., Washington, DC 20555.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The rule requires that nuclear power plants be able to withstand a total loss of ac power for a specified time duration and maintain reactor core cooling during that period. These facilities are licensed under the provisions of §§ 50.21(b) and 50.22 of 10 CFR Part 50. The companies that own these facilities do not fall within the scope of "small entities" as set forth in the Regulatory Flexibility Act or the small business size standards set forth in regulations issued by the Small Business Administration in 13 CFR Part 121.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty,

Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 50.

Backfit Analysis

Analysis and Determination That the Rulemaking To Amend 10 CFR Part 50 Concerning Station Blackout Complies With the Backfit Rule 10 CFR 50.109

The Commission's existing regulations establish requirements for the design and testing of onsite and offsite electrical power systems (10 CFR Part 50, Appendix A, General Design Criteria 17 and 18). However, as operating experience has accumulated, the concern has arisen regarding the reliability of both the offsite and onsite emergency ac power systems. These systems provide power for various safety systems, including reactor core decay heat removal and containment heat removal, which are essential for preserving the integrity of the reactor core and the containment building, respectively. In numerous instances emergency diesel generators have failed to start and run during tests conducted at operating plants. In addition, a number of operating plants have experienced a total loss of offsite electric power, and more such occurrences are expected. Existing regulations do not require explicitly that nuclear power plants be designed to withstand the loss of all ac power for any specified period.

This issue has been studied by the staff as part of Unresolved Safety Issue (USI) A-44, "Station Blackout." Both deterministic and probabilistic analyses were performed to determine the timing and consequences of various accident sequences and to identify the dominant factors affecting the likelihood of core melt accidents from station blackout. Although operational experience shows that the risk to public health and safety is not undue, these studies, which have evaluated plant design features and site-dependent factors in detail, show that blackout can be a significant contributor to the overall residual risk. Consequently, the Commission is amending its regulations to require that plants be capable of withstanding a total loss of ac power for a specified duration and to maintain reactor core cooling during that period.

An analysis of the benefits and costs of implementing the station blackout

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rule is presented in NUREG-1109, "Regulatory/Backfit Analysis for the Resolution of Unresolved Safety Issue A-44, Station Blackout. The estimated benefit from implementing the station blackout rule is a reduction in the frequency of core damage per reactor-year due to station blackout and the associated risk of offsite radioactive releases. The risk reduction for 100 operating reactors is estimated to be 145,000 person-rem and supports the Commission's conclusion that § 50.63 provides a substantial improvement in the level of public health and safety protection.

The cost for licensees to comply with the rule would vary depending on the existing capability of each plant to cope with a station blackout, as well as the specified station blackout duration for that plant. The costs would be primarily for licensees (1) to assess the plant's capability to cope with a station blackout, (2) to develop procedures, (3) to improve diesel generator reliability if the reliability falls below certain levels, and (4) to retrofit plants with additional components or systems, as necessary, to meet the requirements.

The estimated total cost for 100 operating reactors to comply with the resolution of USI A-44 is about \$60 million. The average cost per reactor would be around \$600,000, ranging from \$350,000, if only a station blackout assessment and procedures and training are necessary, to a maximum of about \$4 million if substantial modifications are needed, including requalification of a diesel generator.

The overall value-impact ratio, not including accident avoidance costs, is about 2,400 person-rem averted per million dollars. If the net cost, which includes the cost savings from accident avoidance (i.e., cleanup and repair of onsite damages and replacement power following an accident), were used, the overall value-impact ratio would improve significantly to about 6,100 person-rem averted per million dollars. These values, which exceed the \$1,000/person-rem interim guidance provided by the Commission, support proceeding with the implementation of § 50.63.

The preceding quantitative value-impact analysis was one of the factors considered in evaluating the rule, but other factors also played a part in the decision-making process. Probabilistic risk assessment (PRA) studies performed for this USI, as well as some plant-specific PRAs, have shown that station blackout can be a significant contributor to core melt frequency, and, with consideration of containment failure, station blackout events can represent an important contributor to

reactor risk. In general, active systems required for containment heat removal are unavailable during station blackout. Therefore, the offsite risk is higher from a core melt resulting from a station blackout than it is from many other accident scenarios.

Although there are licensing requirements and guidance directed at providing reliable offsite and onsite ac power, experience has shown that there are practical limitations in ensuring the reliability of offsite and onsite emergency ac power systems. Potential vulnerabilities to common cause failures associated with design, operational, and environmental factors can affect ac power system reliability. For example, if potential common cause failures of emergency diesel generators exist (e.g., in service-water or dc power support systems), then the estimated core damage frequency from station blackout events can increase significantly. Also, even though recent data indicate that the average emergency diesel generator reliability has improved slightly since 1976, these data also show that diesel generator failure rates during unplanned demand (e.g., following a loss of offsite power) were higher than that during surveillance tests.

The estimated frequency of core damage from station blackout events is directly proportional to the frequency of the initiating event. Estimates of station blackout frequencies for this USI were based on actual operational experience with credit given for trends showing a reduction in the frequency of losses of offsite power resulting from plant-centered events. This is assumed to be a realistic indicator of future performance. An argument can be made that the future performance will be better than the past. For example, when problems with the offsite power grid arise, they are fixed and, therefore, grid reliability should improve. On the other hand, grid power failures may become more frequent because fewer plants are being built, and more power is being transmitted among regions, thus placing greater stress on transmission lines.

The factors discussed above support the determination that additional defense-in-depth provided by the ability of plant to cope with station blackout for a specific duration would provide substantial increase in the overall protection of the public health and safety, and the direct and indirect costs of implementation are justified in view of this increased protection. The Commission has considered how this backfit should be prioritized and scheduled in light of other regulatory activities ongoing at operating nuclear

power plants. Station blackout warrants a high priority ranking based on both its status as an "unresolved safety issue" and the results and conclusions reached in resolving this issue. As noted in the implementation section of the rule (§ 50.63(c)(4)), the schedule for equipment modification (if needed to meet the requirements of the rule) shall be established by the NRC staff in consultation and coordination with the licensee. Modifications that cannot be scheduled for completion within two years after NRC accepts the licensee's specified station blackout duration must be justified by the licensee. The NRC retains the authority to determine the schedules for modifications.

In addition, some foreign countries, including France, Britain, Sweden, Germany and Belgium, have taken steps to reduce the risk from station blackout events. These steps include adding design features to enhance the capability of the plant to cope with a station blackout for a substantial period of time and/or adding redundant and diverse emergency ac power sources.

Analysis of § 50.109(c) Factors

1. Statement of the specific objectives that the backfit is designed to achieve.

The NRC staff has completed a review and evaluation of information developed since 1980 on Unresolved Safety Issue (USI) A-44, Station Blackout. As a result of these efforts, the NRC is amending 10 CFR Part 50 by adding a new § 50.63, "Station Blackout."

The objective of the station blackout rule is to reduce the risk of severe accidents associated with station blackout. Specifically, the rule requires all light-water-cooled nuclear power plants to be able to cope with a station blackout for a specified duration and to have procedures and training for such an event. A regulatory guide, to be issued along with the rule, provides an acceptable method to determine the station blackout duration for each plant. The duration is to be determined for each plant based on a comparison of the individual plant design with factors that have been identified as the main contributors to risk of core melt resulting from station blackout. These factors are (1) the redundancy of onsite emergency ac power sources, (2) the reliability of onsite emergency ac power sources, (3) the frequency of loss of offsite power, and (4) the probable time needed to restore offsite power.

2. General description of the activity

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required by the licensee or applicant in order to complete the backfit.

In order to comply with the resolution of USI A-44, licensees will be required to—

- Maintain the reliability of onsite emergency ac power sources at or above specified acceptable reliability levels.
- Develop procedures and training to restore ac power using nearby power sources if the emergency ac power system and the normal offsite power sources are unavailable.
- Determine the duration that the plant should be able to withstand a station blackout based on the factors specified in § 50.63, "Station Blackout," and Regulatory Guide 1.155, "Station Blackout."

• If available, an alternate ac power source that meets specific criteria for independence and capacity can be used to cope with a station blackout.

• Evaluate the plant's actual capability to withstand and recover from a station blackout. This evaluation includes:

- Verifying the adequacy of station battery power, condensate storage tank capacity, and plant/instrument air for the station blackout duration.
- Verifying the operability of equipment needed to operate during a station blackout and the recovery from the blackout for environmental conditions associated with total loss of ac power (i.e., loss of heating, ventilation, and air conditioning).

• Depending on the plant's existing capability to cope with a station blackout, licensees may or may not need to backfit hardware modifications (e.g., adding battery capacity) to comply with the rule. (See item 8 of this analysis for additional discussion.) Licensees will be required to have procedures and training to cope with and recover from a station blackout.

3. Potential change in the risk to the public from the accidental offsite release of radioactive material.

Implementation of the station blackout rule will result in an estimated total risk reduction to the public ranging from 65,000 to 215,000 person-rem with a best estimate of about 145,000 person-rem.

4. Potential impact on radiological exposure of facility employees.

For 100 operating reactors, the estimated total reduction in occupational exposure resulting from reduced core damage frequencies and associated postaccident cleanup and repair activities is 1,500 person-rem. No

significant increase in occupational exposure is expected from operation and maintenance activities associated with the rule. Equipment additions and modifications contemplated do not require work in and around the reactor coolant system and therefore are not expected to result in significant radiation exposure.

5. Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay.

For 100 operating reactors, the total estimated cost associated with the station blackout rule ranges from \$42 to \$94 million with a best estimate of \$60 million. This estimate breaks down as follows:

Activity	Estimated number of reactors	Estimated total cost (million dollars)		
		Best	High	Low
Assess plant's capability to cope with station blackout	100	25	40	20
Develop procedures and training	100	10	15	5
Improve diesel generator reliability	10	2.5	4	1.5
Requalify diesel generator	2	5.5	11	2.5
Install hardware to increase plant capability to cope with station blackout	27	17	24	13
Totals		60	94	42

6. The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements.

The rule requiring plants to be able to cope with a station blackout should not add to plant or operational complexity. The station blackout rule is closely related to several NRC generic programs and proposed and existing regulatory requirements as the following discussion indicates.

Generic Issue B-56, Diesel Generator Reliability

The resolution of USI A-44 includes a regulatory guide on station blackout that specifies the following guidance on diesel generator reliability (Regulatory Guide 1.155, Sections C1.1 and C.1.2):

The minimum emergency diesel generator (EDG) reliability should be targeted at 0.95 per demand for each EDG for plants in emergency ac Groups A, B, and C and at

0.975 per demand for each EDG for plants in emergency ac Group D (see Table 2). These reliability levels will be considered minimum target reliabilities and each plant should have an EDG reliability program containing the principal elements, or their equivalent, outlined in Regulatory Position 1.2. Plants that select a target EDG reliability of 0.975 will use the higher level as the target in their EDG reliability programs.

The reliable operation of onsite emergency ac power sources should be ensured by a reliability program designed to maintain and monitor the reliability level of each power source over time for assurance that the selected reliability levels are being achieved. An EDG reliability program would typically be composed of the following elements or activities (or their equivalent):

1. Individual EDG reliability target levels consistent with the plant category and coping duration selected from Table 2.

2. Surveillance testing and reliability monitoring programs designed to track EDG performance and to support maintenance activities.

3. A maintenance program that ensures that the target EDG reliability is being achieved and that provides a capability for failure analysis and root-cause investigations.

4. An information and data collection system that services the elements of the reliability program and that monitors achieved EDG reliability levels against target values.

5. Identified responsibilities for the major program elements and a management oversight program for reviewing reliability levels being achieved and ensuring that the program is functioning properly.

The resolution of B-56 will provide specific guidance for use by the staff or industry to review the adequacy of diesel generator reliability programs consistent with the resolution of USI A-44.

Generic Issue 23, Reactor Coolant Pump Seal Failures

Reactor coolant pump (RCP) seal integrity is necessary for maintaining primary system inventory during station blackout conditions. The estimates of core damage frequency for station blackout events for USI A-44 assumed that RCP seals would leak at a rate of 20 gallons per minute. Results of analyses performed for GI 23 will provide the information necessary to estimate RCP seal behavior during a station blackout. The industry coping analysis guidelines (NUMARC-8700) recognize the possibility of leakages exceeding an assumed 25 gpm per pump and incorporate the need to reevaluate the plant-specific coping analysis if the resolution of GI 23 identifies higher levels.

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USI A-45, Shutdown Decay Heat Removal Requirements

The overall objective of USI A-45 is to evaluate the adequacy of current licensing design requirements to ensure that the nuclear power plants do not pose an unacceptable risk as a result of failure to remove shutdown decay heat. The study includes an assessment of alternative means of shutdown decay heat removal and of diverse "dedicated" systems for this purpose. Results will include proposed recommendations regarding the desirability of, and possible design requirements for, improvements in existing systems or an alternative dedicated decay heat removal method.

The USI A-44 concern for maintaining adequate core cooling under station blackout conditions can be considered a subset of the overall A-45 issue. However, there are significant differences in scope between these two issues. USI A-44 deals with the probability of loss of ac power, the capability to remove decay heat using systems that do not require ac power, and the ability to restore ac power in a timely manner. USI A-45 deals with the overall reliability of the decay heat removal function in terms of response to transients, small-break loss-of-coolant accidents, and special emergencies such as fires, floods, seismic events, and sabotage.

Although the recommendations that might result from the resolution of USI A-45 are not yet final, some could affect the station blackout capability, while others would not. Recommendations that involve a new or improved decay heat removal system that is ac power dependent but that does not include its own dedicated ac power supply would have no effect on USI A-44. Recommendations that involve an additional ac-independent decay heat removal system would have a very modest effect on USI A-44. Recommendations that involve an additional decay heat removal system with its own ac power supply would have a significant effect on USI A-44. Such a new additional system would receive the appropriate credit within the USI A-44 resolution by either changing the emergency ac power configuration group or providing the ability to cope with a station blackout for an extended period of time. Well before plant modifications, if any, will be implemented to comply with the station blackout rule, it is anticipated that the proposed technical resolution of USI A-45 will be published for public comment. Those plants needing hardware modifications for station blackout could

be reevaluated before any actual modifications are made so that any contemplated design changes resulting from the resolution of USI A-45 can be considered at the same time.

Generic Issue A-30, Adequacy of Safety-Related DC Power Supply

The analysis performed for USI A-44 assumed that a high level of dc power system reliability would be maintained so that (1) dc power system failures would not be a significant contributor to losses of all ac power and (2) should a station blackout occur, the probability of immediate dc power system failure would be low. Whereas Generic Issue A-30 focuses on enhancing battery reliability, the resolution of USI A-44 is aimed at ensuring adequate station battery capacity in the event of a station blackout of a specified duration. Therefore, these two issues are consistent and compatible.

Fire Protection Program

Section 50.48 of 10 CFR Part 50 states that each operating nuclear power plant must have a fire protection plan that satisfies GDC 3. The fire protection features required to satisfy GDC 3 are specified in Appendix R to 10 CFR Part 50. They include certain provisions regarding alternative and dedicated shutdown capability. To meet these provisions, some licensees have added, or plan to add, improved capability to restore power from offsite sources or onsite diesels for the shutdown system. A few plants have installed a safe shutdown facility for fire protection that includes a charging pump powered by its own independent ac power source. In the event of a station blackout, this system can provide makeup capability to the primary coolant system as well as reactor coolant pump seal cooling. This could be a significant benefit in terms of enhancing the ability of a plant to cope with a station blackout. Plants that have added equipment to achieve alternate safe shutdown in order to meet Appendix R requirements could take credit for that equipment, if available, for coping with a station blackout event.

7. The estimated resource burden on the NRC associated with the backfit and the availability of such resources.

The estimated total cost for NRC review of industry submittals required by the station blackout rule is \$1.5 million based on submittals for 100 reactors and an estimated average of 175 person-hours per reactor.

8. The potential impact of differences in facility type, design, or age on the relevancy and practicality of the backfit.

The station blackout rule applies to all pressurized water reactors and boiling water reactors. However, in determining an acceptable station blackout coping capability for each plant, differences in plant characteristics relating to ac power reliability (e.g., number of emergency diesel generators, the reliability of the offsite and onsite emergency ac power systems) could result in different acceptable coping capabilities. For example, plants with an already low risk from station blackout because of multiple, highly reliable ac power sources are required to withstand a station blackout for a relatively short period of time; and few, if any, hardware backfits would be required as a result of the rule. Plants with currently higher risk from station blackout are required to withstand somewhat longer duration blackouts; and, depending on their existing capability, may need some modifications to achieve the longer station blackout capability.

9. Whether the backfit is interim or final and, if interim, the justification for imposing the backfit on an interim basis.

The station blackout rule is the final resolution of USI A-44; it is not an interim measure.

53 FR 24018
Published 6/27/88
Effective 7/27/88

General Requirements for
Decommissioning Nuclear Facilities

See Part 30 Statements of Consideration

53 FR 35996
Published 9/16/88
Effective 10/17/88

10 CFR Part 50

Emergency Core Cooling Systems; Revisions to Acceptance Criteria

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to allow the use of alternative methods to demonstrate that the emergency core cooling system (ECCS) would protect the nuclear reactor core during a postulated design basis loss-of-coolant accident (LOCA). The Commission is taking this action because research, performed since the current rule was written, has shown that calculations performed using current methods and in accordance with the current requirements result in estimates

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of cooling system performance that are significantly more conservative than estimates based on the improved knowledge gained from this research. While the existing methods are conservative, they do not result in accurate calculation of what would actually occur in a nuclear power plant during a LOCA and may result in less than optimal ECCS design and operating procedures. In addition, the operation of some nuclear reactors is being unnecessarily restricted by the rule, resulting in increased costs of electricity generation. This rule, while continuing to allow the use of current methods and requirements, also allows the use of more recent information and knowledge to demonstrate that the ECCS would protect the reactor during a LOCA. This amendment, which applies to all applicants for and holders of construction permits or operating licenses for light water reactors, also relaxes requirements for certain reporting and reanalyses which do not contribute to safety.

EFFECTIVE DATE: October 17, 1988.

FOR FURTHER INFORMATION CONTACT: L.M. Shotkin, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3530.

SUPPLEMENTARY INFORMATION:

Background

On March 3, 1987, the Nuclear Regulatory Commission published in the *Federal Register* proposed amendments (52 FR 6334) to 10 CFR Part 50 and Appendix K. These proposed amendments were motivated by the fact that since the promulgation of § 50.46 of 10 CFR Part 50, "Acceptance Criteria for Emergency Core Cooling Systems (ECCS) in Light Water Power Reactors," and the acceptable and required features and models specified in Appendix K to 10 CFR Part 50, considerable research has been performed that has greatly increased the understanding of ECCS performance during a LOCA. It is now confirmed that the methods specified in Appendix K, combined with other analysis methods currently in use, are highly conservative and that the actual cladding temperatures which would occur during a LOCA would be much lower than those calculated using Appendix K methods. In soliciting the public's comments on the proposed rule, the NRC specifically requested its views on questions posed by Commissioner Asselstine and the Advisory Committee on Reactor Safeguards (ACRS). The ACRS requested that the Commission

solicit the public's comments on whether the existing rule should be "grandfathered" indefinitely. That is:

1. Should the conservative ECCS evaluation method of Appendix K be permitted indefinitely or should this aspect of the ECCS rule be phased out after some period of time?

Commissioner Asselstine requested the public's comments on the following:

2. Should this rule change include an explicit degree of conservatism that must be applied to the evaluation models?

3. This rule change would allow a 5 to 10 percent increase in the fission product inventory that could be released from any core meltdown scenario. Should this rule change explicitly prohibit any increase in approved power levels until all severe accident issues and unresolved safety issues are resolved?

4. Should the technical basis for this proposed rule change be reviewed by an independent group such as the American Physical Society?

Summary of Public Comments

The comment period for the proposed rule revision and the draft regulatory guide (52 FR 11385) expired on July 1, 1987. Twenty-seven letters addressing the proposed rule were received by the expiration date, as well as nine responses to the request for comments on questions in the regulatory guide. A number of late comments were also received. These were also considered to the extent that new and substantial comments were provided.

The public comment on the proposed rule revisions have been divided into thirteen categories and are summarized in the following paragraphs. Categories one through four represent the responses to the specific questions posed by the ACRS and Commissioner Asselstine. In general, consideration of the public comments resulted in no substantive revision to the proposed rule.

1. Grandfathering of Conservative ECCS Methods of Appendix K (Question 1).

Twenty-one of the commenters specifically addressed the ACRS question concerning the grandfathering of the current Appendix K approach. Seventeen of these commenters recommended indefinite grandfathering of the existing Appendix K evaluation models. Most cited the known conservatism as the basis of their recommendation. In addition, several commenters stated that in light of the known conservatisms not allowing continued use of existing Appendix K evaluation models would be unfairly burdensome to licensees who determine

that they would not derive an economic benefit by performing realistic analysis of ECCS performance. The position of an additional commenter is unclear concerning grandfathering. The remaining commenter was not opposed to grandfathering but thought the question is premature. This commenter believes that indefinite use of existing ECCS evaluation methods should be considered when significant experience has been gained with the implementation of the new features of the rule but makes no recommendation as to what policy the Commission should pursue in the meantime.

The Commission agrees with the majority of the commenters that existing Appendix K evaluation models should be permitted indefinitely. The Commission also believes that the decision to permit continued use of such models can and should be made at this time because it believes that both methods provide adequate protection of the public health and safety. As described in the regulatory analysis, the probability of a large break is so low, that the choice of best estimate versus Appendix K has little effect on public risk. The TMI action plan calls for industry to improve their small break LOCA evaluation models to be more realistic when evaluating the more probable small break accident scenario. This has been done within the context of § 50.46 and Appendix K compliance and was entirely appropriate since small breaks are not limiting in design basis performance and a better understanding of small break behavior is a desirable safety goal from a risk perspective. Therefore, the grandfathering provision has been retained in the final rule.

2. Specification of Explicit Degree of Conservatism (Question 2). The majority of the responses to this question indicated that the proposed rule already contains conservatism in the required uncertainty evaluation.

The use of additional conservatism would be inconsistent with the objective of the rule which is to provide a realistic evaluation of plant response during a LOCA. The NRC has not included an additional explicit degree of conservatism in this rule.

3. Resolution of all Safety Issues Prior to Allowing Power Level Increases (Question 3). Some commenters pointed out that fission product inventory is not a direct function of total power, but rather it is the rate of fission product formation that is a direct function of power. Fission product inventory available for release during a core meltdown would be a function of burnup, not total power.

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Actually, the inventory of fission products is a complex function of both time and power and not as simple as described by the commenters. Short lived isotopes, such as xenon and iodine, quickly reach an equilibrium inventory and total steady state inventory of these fission products is a direct function of power. Inventories of long-lived isotopes, such as strontium and cesium, are functions of total fuel burnup, as described by the commenters. Intermediate-lived isotopic inventories are complex functions of time, power, and integrated power. In an independent study, documented in chapter XII of NUREG 1230, the staff determined that the change in risk due to a 5% power increase is negligible. The arguments above do not alter the Commission's position that the increase in fission products available for release during a core meltdown caused by a 5% power increase is negligible compared to the uncertainty in fission product release. The Commission has decided not to delay the proposed rule revision pending resolution of all unresolved safety issues or severe accident issues and therefore will proceed with this final rulemaking, as planned.

4. Independent Review of Technical Basis (Question 4). Several commenters indicated that the technical basis for the proposed rule has had adequate review as the research was being performed. A number of commenters stated that it was the role of the ACRS to perform any review of the proposed rule revision because it is uniquely qualified due to its familiarity with the research.

The Commission agrees that the technical basis has had adequate review, except for the uncertainty methodology which is new and untried except for the General Electric Company's use of an uncertainty evaluation of their SAFER code. As a proof of principle and demonstration of feasibility, the ACRS and a second independent peer group has reviewed the uncertainty methodology developed by the NRC for use in quantifying the uncertainty of NRC developed thermal hydraulic transient codes. Both the ACRS and the peer group made generally favorable comments concerning the methodology; however, both groups recognized that a complete demonstration (i.e., application to small break LOCA and the reflood portion of large break LOCA) has not yet been accomplished and certain reviewers questioned whether such a demonstration could be performed successfully. The only objectives of the NRC methodology demonstration are to demonstrate feasibility, to develop an

audit tool, and to provide the necessary experience to audit licensee submittals. The staff does not believe that an NRC demonstration of the methodology is a prerequisite to this rulemaking. Licensees wishing to adopt the best estimate approach permitted as a result of this rule are neither required to use this methodology nor to model their own methodologies after it. This methodology will play an important part in the best-estimate model review process. The NRC has determined through twenty years of experience that independent analysis with independent methodologies is the most effective way to intelligently review new vendor or licensee methodologies. It is therefore appropriate that this new methodology be subjected to stringent technical scrutiny, as directed by the Commission. The NRC staff is committed to completing this demonstration by the time that it will be needed to review licensee submittals and is confident that such a demonstration will be successful. Based on the paucity of negative response concerning the technical basis for the proposed rule revision and generally favorable review of the NRC uncertainty methodology, the Commission plans no further review of the technical basis.

5. General Comments on Proposed Rule. Twenty-one commenters made comments of this nature. The majority of the comments came from the nuclear industry of which 19 expressed support of the proposed rule. The industry also strongly supports the specific ECCS rule approach proposed by the NRC. One commenter neither supported nor opposed the proposed approach. One negative comment was received from an anonymous individual within the nuclear industry who implied, without specifics, that the ECCS rule is not sound and that public comment is not a fair hearing because expert insiders would be afraid to comment.

Based on the absence of any supporting justification for the negative response and the unprecedented amount of research supporting the rule revision, the NRC does not consider this comment to be valid and has proceeded with this rulemaking with no major revisions.

One commenter suggested that fuel reload suppliers should not be required to complete full LOCA/ECCS analyses because the hydraulics are not changed by a fuel change.

Although this point is valid, the Commission believes that it is an unworkable situation to allow fuel suppliers to make use of previous analyses performed by others. It is believed that serious questions of accountability would arise in cases

where errors are discovered in evaluation models, requests are made to revise plant technical specifications, or some other questions regarding the analyses are raised. The NRC believes that shared responsibility for evaluation models would not be in the best interest of the public health and safety and therefore has not implemented the suggestion of this commenter.

The NRC received two requests for an extension of the comment period to allow time for review of NUREG-1230, which describes the research supporting the proposed rule revision.

The NRC believes the comment period was sufficient since most of the research is not new and has been extensively reviewed in the past. Both commenters were contacted and told that comments received after the comment period would be considered if time permitted. Comments from both parties were received late and were indeed considered by the NRC.

6. Reporting Requirements. Some commenters viewed the proposed reporting procedures as new requirements needing consideration in the backfit analysis while others stated that they are a major relaxation and clarification of existing reporting requirements.

The NRC position is that the reporting requirements are new in the sense that they will now appear in the Code of Federal Regulations. However, in practice, these reporting requirements are indeed a clarification and relaxation over the current interpretation for the existing requirements and therefore the net effect of these requirements will be to reduce the frequency for reporting and reanalysis.

A number of commenters requested that only significant errors or changes in the non-conservative direction or only those that result in exceeding the 2200°F limit be required to be reported. In addition, a number of commenters suggested that the NRC require only annual reporting of significant errors or changes.

The NRC considers a major error or change in any direction a cause for concern because it raises potential questions about the adequacy of the evaluation model as a whole. Therefore, the NRC requires the reporting of significant errors or changes, in either direction, on a timely basis so that the Commission may make a determination of the safety significance. Thus, the final rule contains no change in this requirement.

One commenter recommended that the word "immediate" be deleted from the requirement to propose steps to be taken to demonstrate compliance in the

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event that the criteria in § 50.46(b) are exceeded.

The Commission considers this a very serious condition in which the plant is not in compliance with the regulations and may be operating in an unsafe manner. The word "immediate" reflects this seriousness and is further defined by reference in other sections of Part 50.

Several commenters questioned the need to report minor or inconsequential errors or changes, even on an annual basis, as required in the proposed rule.

While errors or changes which result in changes in calculated peak clad temperatures of less than 50°F are not considered to be of immediate concern, the NRC requires cognizance of such changes or corrections since they constitute a deviation from what previously has been reviewed and accepted. The proposed annual reporting is believed to be a fair compromise between the burden of reporting and the Commission's need to be aware of changes and error corrections being made to evaluation models. Therefore, the annual reporting of minor errors remains in the final rule.

One commenter interpreted the use of the words "or in the application of such a model" as requiring reporting when facility changes (already reportable under § 50.59), resulting in model input changes, occur.

The regulatory language referred to is intended to ensure that applications of models to areas not contemplated during initial review of the model do not result in errors by extending a model beyond the range that it was intended. The Commission does not believe that further clarification of this requirement is necessary and has not done so in the final rule.

Several commenters requested a further relaxation of the reporting requirement by changing the definition of significant code errors from 50°F to 100°F.

While justification for the 50°F criteria is largely judgmental, the NRC believes that it is sufficiently large to screen the code error corrections and changes which have little safety significance while providing a mechanism for timely reporting of more serious errors and changes. Since 50°F is a threshold for reporting and no further action is required pending NRC determination of safety significance, the Commission has retained this criteria in the final rule.

One commenter requested consideration for allowing that the cumulative effect of several errors and corrections be applied towards the 50°F threshold.

The requirement, which states that the 50°F criteria applies to the sum of the absolute magnitudes of temperature changes from numerous error corrections or model changes was formulated specifically because the Commission requires knowledge of serious deficiencies in evaluation models in use by licensees. Allowing errors or corrections which offset one another to relieve a licensee of the thirty-day reporting requirement, would be counter to this objective. If this recommendation were accepted, two errors or changes, having a large impact on the calculated peak cladding temperature but in the opposite direction, would not be reportable if the net magnitude of their difference was less than 50°F. For this reason, and the fact that no further action (beyond reporting within thirty days) is required, the Commission retained this requirement in the final rule.

7. Continued Use of Dougall-Rohsenow. Five comments that addressed this aspect of the proposed rule were received. One commenter believed that this correlation should not be permitted without further verification and should be phased out. Other commenters supported continued use of the correlation subject to the provisions of the proposed rule.

The NRC position is that no safety concern is created by continued use of the correlation, as long as the evaluation model is overall conservative. Therefore, the Commission can not justify the burden of requiring licensees to modify their evaluation models and to perform reanalysis. As discussed in SECY 83-472, current evaluation models contain more conservatism than just those required by Appendix K. However, error corrections or changes could alter the conservatism of the model. Therefore, the Commission believes that it is necessary to ensure continued overall conservatism in the evaluation models as a basis for continued use of the correlation. Therefore, the final rule does not modify this requirement except for the correction of a typographical error identified by one commenter.

8. Uncertainty Evaluation. The comments received on the uncertainty evaluation support the proposed rule, particularly the flexibility provided by a non-prescriptive requirement. Therefore, the Commission is publishing the final rule without modification of this requirement.

9. Acceptance Criteria. The three comments received on this topic were all supportive of the existing criteria, as contained in § 50.46(b), and thus the

Commission did not give consideration to altering them in the final rule.

10. Cladding Materials. Three commenters requested that the Commission consider broadening the language of the rule to allow the use of a range of zirconium based alloys for cladding material.

The Commission believes that this modification is beyond the scope of the current rule revision and should be considered in a separate rulemaking action in which it would receive appropriate public review and comment prior to implementation. In addition, zircaloy cladding material is specified in other portions of the Code of Federal Regulations, such as § 50.44. Making a change of this type is more suitable in a broader regulatory context. Therefore, the Commission is not broadening the definition of cladding materials within this rulemaking.

11. Other Suggested Expansions to Rule Scope. One commenter believes that hydraulic loads occurring during a LOCA could cause steam generator tubes to rupture and that the NRC should resolve steam generator tube integrity safety issues prior to publishing this rule.

Steam generator tubes are designed to withstand LOCA loads at allowed thinning, and there is no evidence to contradict this. If anything, the problem would be with inspection techniques to detect the actual tube thinning and whether there is an unacceptably high probability that a tube rupture during a LOCA due to tube thinning is in excess of the design basis. However, the risk from LOCA with concurrent tube rupture will not be greatly affected by the proposed rule change. As a result of the commenter's concerns, this issue has been assigned as a generic issue (GI-141) to be prioritized by the NRC staff. The results of the prioritization process will determine if further action is required.

A second commenter believes that the ECCS rule does not adequately address a plant's long term decay heat removal capability, and recommends a "short/long term integrative analysis approach." Both the existing requirements and the proposed rule contain the requirement to provide for long term cooling subsequent to a LOCA. Small increases in power that may result from the proposed rule should not greatly change decay heat removal requirements following a LOCA or any other accident or transient. Thus, the issue of decay heat removal is not materially impacted by this rulemaking. Moreover, any proposed increase in power resulting from this rule

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promulgation would be approved only after the licensee demonstrates that decay heat removal capacities remain adequate. The Commission is planning no further action with regard to this issue.

12. *Acceptability of Models Approved Under SECY-83-472.* One commenter requests that the rule language be modified to state explicitly that ECCS evaluation models that have been previously approved under SECY-83-472 continue to be acceptable under this rule.

SECY 83-472 provides an alternative, acceptable method for developing ECCS evaluation models. Licensees were still required, however, to demonstrate that evaluation models developed using the SECY-83-472 approach complied with the requirements of Appendix K to Part 50. This final rule explicitly finds that ECCS evaluation models, which have been previously approved as satisfying the requirements of Appendix K, remain acceptable. Therefore, the Commission sees no need for further clarification of this issue.

13. *Comments Received After Comment Period.* Six letters commenting on the proposed rule were received subsequent to the end of the comment period. The Commission considered these comments to the extent that the comments provided substantive information not previously considered.

One commenter believes that the proposed § 50.46(a)(2) expands the discretion of the Director of the Office of Nuclear Reactor Regulation (NRR) by allowing imposition of immediate effective restrictions on reactor operation without a prior determination that such action is required to protect the public health, safety, or interest. NRC's intent is not to alter the responsibilities of the Director of NRR but to simply retain the description of the scope of the authority that is currently found in § 50.46(a)(1)(v). Furthermore, the provisions of § 50.46(a)(2) do not specify the procedure to be followed by the Director of NRR. These procedures are set out in Part 2 and remain unchanged by this rulemaking.

One commenter believes that the rule is illegal because it is based solely on cost savings considerations and that there is nothing wrong with large conservatisms.

The Commission disagrees with this assessment. Safety factors are required to protect the health and safety of the public when uncertainties in plant response exist. As these uncertainties are reduced, it is appropriate to modify these safety factors to provide more

realistic evaluation of actual plant response. The large conservatisms of Appendix K served the public well in 1974 when there was great uncertainty in ECCS performance. However, these conservatisms are now known to be very large, and there is no need to "over regulate" by maintaining this unnecessary margin. This type of activity can often result in the expenditure of resources that would be better spent improving safety in other areas. The benefits to safety, while difficult to quantify, are believed to be substantial. While cost savings may have been one factor resulting in the rule change, the Commission believes that the conservatisms contained in the acceptance criteria themselves, as well as those required in the uncertainty evaluation required in this rule, are adequate to protect the health and safety of the public.

This commenter also cites portions of the 1975 General Electric Company's Nuclear Reactor Study (Reed Report), which claims that there is a lack of understanding of phenomena and small safety margins.

Many of the conclusions of the "Reed Report" were valid in 1975 when it was written and due to this fact it was difficult to show that sufficient safety margins existed. Most of the research discussed in NUREG-1230 has been conducted since the "Reed Report" was written and has resulted in significant improvement in understanding LOCA phenomena. We now know that significant margin to the ECCS acceptance criteria exists, particularly for the BWR/6 which was of concern in the "Reed Report." The contents of this report have been reviewed by the Commission on several occasions, most recently in NUREG-1285, and the finding has been made that no new significant safety issues are identified. For these reasons, the NRC is proceeding with this rulemaking, as proposed.

The same commenter also recommends that credit for ECCS margins be taken in the Individual Plant Examinations (IPE) and not through generic rulemaking.

The Commission agrees that plant specific differences may justify the application of different margins and that these may be addressed through Individual Plant Examinations. However, the requirement for licensees to evaluate ECCS performance and meet the acceptance criteria specified in 10 CFR 50.46(b) is generic. The Commission believes that margins that may be reduced due to a better understanding of a reactor's response to a LOCA should be applied through a generic rulemaking action because it allows a broad range

of technical review of the issues, enhances public participation in the process, and provides a complete public record. Therefore, the Commission has decided to proceed with the rulemaking as planned.

Finally, this commenter questions the experimental basis for this rule because full-scale ECCS bypass data is not yet available.

The 2D/3D tests which will provide this important data represent a small portion of the total research upon which this rule relies. Significant research on ECCS bypass has already been completed in small scale vessels and the full-scale work is required only to confirm the smaller scale results and quantify any uncertainty due to scale effects. One full-scale ECCS bypass test has already been completed under the 2D/3D program which showed that more margin exists than expected from the small scale tests. Completion of the full-scale tests only affects the uncertainties in the calculations, and reduces them. Uncertainties must be addressed by licensees in any analysis under the revised rule whether 2D/3D results are available or not. The Commission concludes that there is no need to delay the final rule, while awaiting these data.

Summary of Rule Changes

Section 50.46 Acceptance Criteria for Emergency Core Cooling Systems for Light Water Reactors.

Section 50.46(a)(1) is amended and redesignated § 50.46(a)(1)(i) to delete the requirement that the features of Section I of Appendix K to Part 50 be used to develop the evaluation model. This section now requires that an acceptable evaluation model have sufficient supporting justification to show that the analytical technique realistically describes the behavior of the reactor system during a LOCA. The NRC expects that the analytical technique will, to the extent practicable, utilize realistic methods and be based upon applicable experimental data. The amended rule also requires that the uncertainty of the calculation be estimated and accounted for when comparing the results of the calculation to the temperature limits and other criteria of § 50.46(b) so that there is a high probability that the criteria would not be exceeded. The Commission expects the realistic evaluation model to retain a degree of conservatism consistent with the uncertainty of the calculation. The final rule does not specifically prescribe the analytical methods or uncertainty evaluation techniques to be used. However, guidance has been provided in the form

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of a Regulatory Guide.¹ In SECY-83-472, the NRC has found acceptable an approach for estimating the 95th percentile of the probability distribution. This percental is considered adequate to meet the high level of probability required by the rule. It is also recognized that the probability cannot be determined using totally rigorous mathematical methods due to the complexity of the calculations. However, the NRC requires that any simplifying assumptions be stated so that the Commission may evaluate them to ensure that they are reasonable. The NRC has independently developed and exercised a methodology to estimate the uncertainty associated with its own thermal-hydraulic safety codes. This methodology is described in the "Compendium of ECCS Research."² This document also provides reference to the large body of relevant thermal-hydraulic research, documents NRC studies on the effects of reactor power increases on risk, and provides background information on the ECCS rule. While this method has not been reviewed for acceptability from the standpoint of safety licensing, it may provide additional guidance on how the uncertainty may be quantified. In addition to providing guidance to industry, this work was undertaken to provide a proof of principle and a tool to independently audit submittals. Appendix K, Section II, "Required Documentation," remains generally applicable, with only minor revisions made to be consistent with the amended rule.

A new paragraph (ii) has been added to § 50.46(a)(1) to allow the features of Section I of Appendix K to be used in evaluation models as an alternative to performing the uncertainty evaluation specified in the amended § 50.46(a)(1)(i). This method would remain acceptable because Appendix K is conservative with respect to the realistic method proposed in the amended § 50.46(a)(1)(i). This would allow both current and future applicants and licensees to use existing evaluation models if they did not need or desire relief from current operating restrictions.

In § 50.46, paragraphs (a) (2) and (3) have been revised to eliminate portions of those paragraphs concerned with historical implementation of the current file. These provisions have been

replaced as described in the following paragraphs.

Section 50.46(a)(2) has been revised to indicate that restrictions on reactor operation may be imposed by the Director of Nuclear Reactor Regulation, if the ECC cooling performance evaluations are not consistent with the requirements of § 50.46(a)(1) (i) and (ii). This section has been added to retain similar requirements that have been deleted from § 50.46(a)(1)(i) by this rule revision. This section does not specify the procedures to be followed by the Director. These procedures are found in Part 2 and are unchanged by this rulemaking.

The current rule contains no explicit requirements concerning reporting and reanalysis when errors in evaluation models are discovered or changes are made to evaluation models. However, current practice has required reporting of errors and changes and reanalyses with the revised evaluation models. This final rule explicitly sets forth requirements to be followed in the event of errors or changes. The definition of a significant change is currently taken from Appendix K, Section II.1.b which defines a significant change as one which changes calculated cladding temperature by more than 20 °F.

The revised § 50.46(a)(3) states specific requirements for reporting and reanalyses when errors in evaluation models are discovered or changes are made to evaluation models. It requires that all changes or errors in approved evaluation models be reported at least annually and does not require any further action by the licensee until the error is reported. Thereafter, although reanalysis is not required solely because of such minor error, any subsequent calculated evaluation of ECCS performance requires use of a model with such error, and any prior errors, corrected. The NRC needs to be apprised of even minor errors or changes in order to ensure that they agree with the applicant's or licensee's assessment of the significance of the error or change and to maintain cognizance of modifications made subsequent to NRC review of the evaluation model. Past experience has shown that many errors or changes to evaluation models are very minor and the burden of immediate reporting cannot be justified for these minor errors because they do not affect the immediate safety or operation of the plant. The NRC therefore requires periodic reporting to satisfy NRC's need to be apprised of changes or errors without imposing an unnecessary burden on the applicant or licensee. This

report is to be filed within one year of discovery of the error and must be reported each year thereafter until a revised evaluation model or a revised evaluation correcting minor errors is approved by the NRC staff.

Significant errors require more timely attention since they may be important to the safe operation of the plant and raise questions as to the adequacy of the overall evaluation model. This final rule defines a significant error or change as one which results in a calculated peak fuel cladding temperature different by more than 50 °F, or an accumulation of errors and changes such that the sum of the absolute magnitude of the temperature changes is greater than 50 °F. More timely reporting (30 days) is required for significant errors or changes. This definition of a significant change is based on NRC's judgment concerning the importance of errors and changes typically reported to the NRC in the past. This final rule revision also allows the NRC to determine the schedule for reanalysis based on the importance to safety relative to other applicant or licensee requirements. Errors or changes that result in the calculated plant performance exceeding any of the criteria of § 50.46(b) mean that the plant is not operating within the requirements of the regulations and require immediate reporting as required by § 50.55(e), § 50.72 and § 50.73 and immediate steps to bring the plant into compliance with § 50.46.

Appendix K ECCS Evaluation Models

Amendments have been made to Appendix K, Section I.C.5.b, to modify the post-CHF heat transfer correlations listed as acceptable. The "McDonough" reference has been replaced with a more recent paper by the same authors entitled "An Experimental Study of Partial Film Boiling Region With Water at Elevated Pressures in a Round Vertical Tube" which is more generally available and which includes additional data.

The heat transfer correlation of Dougall and Rohsenow, listed as an acceptable heat transfer correlation in Appendix K, paragraph I.C.5.b, has been removed, because research performed since Appendix K was written has shown that this correlation overpredicts heat transfer coefficients under certain conditions and therefore can produce nonconservative results. A number of applicants and licensees currently use the Dougall-Rohsenow correlation in approved evaluation models. The NRC has concluded that the continued use of this correlation can be allowed. This is appropriate (even though parts of the approved evaluation model, Dougall-

¹Regulatory Guide, "Best Estimate Calculations of Emergency Core Cooling Systems Performance," RG 1.157.

²"Compendium of ECCS Research for Realistic LOCA Analysis," NUREG-1230, TBP.

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Rohsenow, are known to be nonconservative) because the existing evaluation models are known to contain a large degree of overall conservatism even while using the Dougall-Rohsenow correlation. This large overall conservatism has been demonstrated through comparisons between evaluation model calculations and calculations using NRC's best-estimate computer codes. Thus, requiring that the applicants and licensees remove the Dougall-Rohsenow correlation from their current evaluation models cannot be justified as necessary to maintain safety. The stipulation that the Dougall-Rohsenow correlation will cease to be acceptable for previously approved evaluation models applies only when changes to the model are made which reduce the calculated peak clad temperature by 50 °F or more. However, the requirement to report any changes or culmination of changes, such that the sum of the absolute magnitudes of the respective temperature changes is greater than 50 °F, still applies.

A new Section I.C.5.c has been added to Appendix K to state the Commission's requirements regarding continued use of the Dougall-Rohsenow correlation in existing evaluation models. Evaluation models which make use of the Dougall-Rohsenow correlation and have been approved prior to the effective date of this rule may continue to use this correlation as long as no changes are made to the evaluation model which significantly reduce the current overall conservatism of the evaluation model. If the applicant or licensee submits proposed changes to an approved evaluation model, or submits corrections to errors in the evaluation model which significantly reduce the existing overall conservatism of the model, continued use of the Dougall-Rohsenow correlation under conditions where nonconservative heat transfer coefficients result would no longer be acceptable. For this purpose, significant reduction in overall conservatism has been defined as a "net" reduction in calculated peak clad temperature of at least 50°F from that which would have been calculated using existing evaluation models. A reduction in calculated peak clad temperature could potentially result in an increase in the actual allowed peak power in the plant. An increase in allowed plant peak power with a known nonconservatism in the analysis would be unacceptable. This definition of a significant reduction in overall conservatism is based on a judgment regarding the size of the existing overall conservatism in evaluation model calculations relative to

the conservatism required to account for overall uncertainties in the calculations.

Appendix K, Section II.1.b, has been removed since this requirement has been clarified in the amended § 50.46(a)(3). Likewise, Appendix K, Section II.5, has been amended to account for the fact that not all evaluation models will be required to use the features of Appendix K, Section I. These minor changes to Appendix K do not affect any existing approved evaluation models since the changes are either "housekeeping" in nature or are changes to "acceptable features," not "required features."

Availability of Documents

1. Copies of NUREGs 1230 and 1285 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for public inspection and/or copying at the NRC Public Document Room, 2120 L Street NW., Washington, DC 20555.

2. Copies of SECY-83-472, an information report entitled "Emergency Core Cooling Systems Analysis Methods," dated November 17, 1983, is available for inspection and copying at the NRC Public Documents Room, 2120 L Street NW., Washington, DC 20555. Single copies of this report may be obtained by writing L. M. Shotkin, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

3. Regulatory Guide, "Best Estimate Calculations of Emergency Core Cooling Systems Performance," Task RS 701-4, may be obtained by writing to the Division of Information Support Services, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

4. The Paraphrased Summary of Public Comments on the ECCS Rule is available for public inspection at the NRC Public Documents Room, 2120 L Street NW., Washington, DC 20555.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The primary effect of the rule is to allow an increase in the peak local power in the reactor. This could be used

either to tailor the power shape within the reactor or to increase the total power. Changing the power shape without changing the total power has a negligible effect on the environmental impact. The total power could also be increased, but is expected to be increased by no more than about 5% due to hardware limitations in existing plants. This 5% power increase is not expected to cause difficulty in meeting the existing environmental limits. The only change in non-radiological waste will be an increase in waste heat rejection commensurate with any increase in power. For stations operating with an open (once through) cooling system, this additional heat will be directed to a surface water body. Discharge of this heat is regulated under the Clean Water Act administered by the U.S. Environmental Protection Agency (EPA) or designated state agencies. It is not intended that NRC approval of increased power level affects in any way the responsibility of the licensee to comply with the requirements of the Clean Water Act. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW., Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from L. M. Shotkin, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington DC 20555, telephone (301) 492-3530.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These reporting requirements were approved by the Office of Management and Budget (Approval Number 3150-0011).

Regulatory Analysis

The Commission has prepared a regulatory analysis for this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The regulatory analysis is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW., Washington, DC. Single copies of the analysis may be obtained from L. M. Shotkin, Office of Nuclear Regulatory Research, Washington, DC 20555, telephone (301) 492-3530.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b),

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the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121. Since these companies are dominant in their service areas, this rule does not fall within the purview of the Act.

Backfit Analysis

A backfit analysis is not required by 10 CFR 50.109 because the rule does not require applicants or licensees to make a change but only offers additional options and provides a clarification and relaxation of existing reporting requirements. Nonetheless, the factors in 10 CFR 50.109(c) have been analyzed for the entire rule.

1. *Statement of the specific objectives that the backfit is designed to achieve.*

The objective of the rule is to modify 10 CFR 50.46 and Appendix K to permit the use of realistic ECCS evaluation models. More realistic estimates of ECCS performance, based on the improved knowledge gained from recent research on ECCS performance, may remove unnecessary operating restrictions. Also experience with the previous version of § 50.46 has demonstrated that a clearer definition of reporting requirements for changes and errors is very desirable.

2. *General description of the activity that would be required by the licensee or applicant in order to complete the backfit.*

The amendment allows alternative methods to be used to demonstrate that the ECCS would protect the nuclear reactor core during a postulated design basis loss-of-coolant accident (LOCA). While continuing to allow the use of current Appendix K methods and requirements, the rule also allows the use of more recent information and knowledge currently available to demonstrate that the ECCS would perform its safety function during a LOCA. If an applicant or licensee elects to use a new realistic model they will be required to provide sufficient supporting justification to validate the model and include comparisons to experimental data and estimates of uncertainty. In accounting for the uncertainty, the analysis would have to show, with a high level of probability, that the ECCS performance criteria are not exceeded.

Whether or not a licensee or applicant chooses to use realistic analysis, complete with an uncertainty analysis, each licensee must comply with the requirement to report changes to their evaluation models (i.e., less than 50°F change in calculated peak cladding temperature) annually to the NRC. In addition, significant changes (those which have a greater than 50°F change in calculated peak cladding temperature) have to be reported within 30 days.

3. *Potential change in risk to the public from the accidental offsite release of radioactive materials.*

The rule could result in increased local power within the reactor core and possible increases in total power. Power increases on the order of 5 will have an insignificant effect on risk. One effect of increased power could be to increase the fission product inventory. A five percent power increase would result in a less than five percent increase in fission products. Thus, less than five percent more fission products might be released during core melt scenarios and potentially released to the environment during severe accidents.

The rule still requires the fuel rod peak cladding temperature (PCT) remain below 2200°F. Reactors choosing to increase power by about five percent will be operating with less margin between the PCT and the 2200°F limit than previously. The increased risk represented by this decrease in margin and increase in fission product inventory is negligible and falls within the uncertainties of PRA risk estimates. In addition, other safety limits, such as departure from nucleate boiling (DNB), and operational limits, such as turbine design, will limit the amount of margin reduction permitted under the rule. The rule could also potentially reduce the risk from pressurized thermal shock by allowing the reactor to be operated in a manner which reduces the neutron fluence to the vessel.

4. *Potential impact on radiological exposure to facility employees.*

Since the primary effect of the rule involves the calculational methods to be used in determining the ECCS cooling performance, it is expected that there will be an insignificant impact on the radiological exposure to facility employees. Because of the reduced LOCA restrictions resulting from the new calculations it is possible for the plant to achieve more efficient operation and improved fuel utilization with improved maneuvering capabilities. As a result, it is conceivable that there could be a reduction in radiological exposure if the fuel reloads can be

reduced. This effect is not expected to be very significant.

5. *Installation and continuing costs associated with the backfit, including the cost of facility down times or the cost of construction delay.*

LOCA considerations resulting from the present rule are restricting the optimum production of nuclear electric power in some plants. These restrictions can be placed into the following three categories:

- (1) Maximum plant operating power,
- (2) Operational flexibility and operational efficiency of the plant, and
- (3) Availability of manpower to work on other activities.

The effect of the rule will vary from plant to plant. Some plants may realize savings of several million dollars per year in fuel and operating costs. Significantly greater economic benefit would be realized by plants able to increase total power as a result of this final rule. The regulatory analysis cited above indicates that the total present value of the energy replacement cost savings for a five percent power upgrade would vary between 18 and 127 million dollars depending on the plant. Additional information concerning these potential cost savings are included in the regulatory analysis.

The costs associated with the new reporting requirements are deemed to be minimal. Although the existing Appendix K has no official reporting requirements, paragraph II.1.b was interpreted by the staff to require a reanalysis and report to NRC when significant changes are made which change the peak cladding temperature by more than 20 °F. Therefore, this rule change, by changing the definition of significant changes to 50 °F, is actually a relaxation of current practices. The annual reporting of changes that are not significant is not viewed by the NRC as a major burden since no other action is required.

6. *The potential safety impact of changes in plant or operational complexity including the effect on other proposed and existing regulatory requirements.*

There are safety benefits derivable from alternative fuel management schemes that could be utilized. The higher power peaking factors that would be allowed with the final rule provide greater flexibility for fuel designers when attempting to reduce neutron flux at the vessel wall. This can result in a corresponding reduction in risk from pressurized thermal shock.

The reduced cladding temperatures that would be calculated under the revised rule offers the possibility of other design and operational changes

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that could result from the lower calculated temperatures. ECCS equipment numbers, sizes or surveillance requirements might be reduced and still meet the ECCS design criteria (if not required to meet other licensing requirements). Another option may be to increase the diesel/generator start time duration.

In summary, the effect of this rule on safety would have both potential positive and negative aspects. The potential for reduction of ECCS system capability in existing or new plants is present. However, several positive aspects may also be realized under the final rule. The net effect on safety would be plant specific. However, the probability of a large break LOCA is so low that the choice of best estimate versus Appendix K would have little effect on public risk.

7. The estimated resource burden on the NRC associated with the proposed backfit; and the availability of such resources.

The major staff resources required under the final rule are to review the realistic models and uncertainty analysis required by the revised ECCS Rule. Based on previous experience with the General Electric Company's SAFER model and the learning that has resulted from these efforts, it is estimated that approximately one staff year would be required to review each generic model submitted. There are four major reactor vendors (GE already has a revised evaluation model approved under the existing Appendix K for both jet pump and non-jet pump plants and may update their methodology under this new rule) and several fuel suppliers and utilities which perform their own analyses and potentially might submit generic models for review. However, it is expected that only 3 or 4 generic models would be submitted since not all plants would benefit from this rule. Thus, about 3-4 staff years would be required to review the expected generic models. Once a generic model is approved, the plant specific review is very short. In addition, several vendors are currently planning to submit realistic models in conjunction with the use of SECY-83-472. Therefore, staff resources would be expended to review these models in any event. Since these models would not change as a result of the revised ECCS rule, there should be no net increase in resources required over that already planned to be expended. In summary, while it is difficult to estimate accurately, it is expected that the rule change will have a small overall impact on NRC resources.

8. The potential impact of differences in facility type, design or age on the relevancy and practicality of the backfit.

The degree to which the rule would affect a particular plant depends on how limited the plant is by the LOCA restrictions. General Electric Company (GE) plants do tend to be limited in operation by LOCA restrictions and would benefit from relief from LOCA restrictions. However, this relief is already available for most GE plants through the recently approved SAFER evaluation model. Any additional relief due to a rule change would be of little further benefit. Westinghouse (W) plants would appear to directly benefit from relaxation of LOCA limits. W plants represent the largest number of plants, with 47 plants operating and 10 additional plants being constructed. W indicates that most of these plants are limited by LOCA considerations. The potential benefit for plants of B&W and CE design is uncertain at this time.

9. Whether the proposed backfit is interim or final and if interim, the justification for imposing the proposed backfit on an interim basis.

The rule, when made effective, will be in final form and not interim form. It will continue to permit the performance of ECCS cooling calculations using either realistic models or models in accord with Appendix K.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and Recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 50.

53 FR 36955
Published 9/23/88
Effective 10/24/88

10 CFR Part 50

Emergency Planning and Preparedness Requirements for Nuclear Power Plant Fuel Loading and Low-Power Testing

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to establish more clearly what emergency planning and preparedness requirements are needed for fuel loading and low power testing of nuclear power plants. The rule itself will now require NRC findings on the licensee's emergency plans for dealing with accidents that could affect persons on site. The Commission's prior practice of considering certain offsite elements of licensee's plans has been modified and codified in this regard to provide that NRC findings will be required before fuel loading or low power testing in coordination with offsite personnel and agencies so that necessary resources can be applied on site for mitigating and containing accidents, and so that offsite agencies may be kept informed of plant events. The rule will also change the prior practice, never included in the prior rule itself, of reviewing plans for prompt public notification in the event of an accident. This practice of reviewing an offsite element of licensee emergency plans that has no onsite application is being discontinued as not necessary for public safety. The rule does not change the emergency planning requirements that must be satisfied before full power operation can be authorized. No new requirements are being imposed by the rule beyond those that have been previously required by rule and by prior NRC practice. The rule makes clear that no offsite elements of the applicant's emergency plan, other than those set forth in this revised rule, need be considered in connection with low power licensing.

EFFECTIVE DATE: October 24, 1988.

FOR FURTHER INFORMATION CONTACT: Carole F. Kagan, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone (301) 492-1632, or Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone (301) 492-3918.

SUPPLEMENTARY INFORMATION:

I. Background

On May 9, 1988, the Commission published in the *Federal Register* (53 FR 16435) a notice of proposed rulemaking which would establish more clearly what emergency planning and preparedness requirements are needed for fuel loading and low power testing of nuclear power plants. As detailed in the notice of proposed rulemaking, 10 CFR 50.47(d) as promulgated on July 13, 1982 (47 FR 30232) provided that only a finding as to the adequacy of an

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applicant's onsite emergency planning and preparedness is required for low power. However, the provision in the Statement of Considerations that systems for prompt notice to the public in the event of an accident would also be reviewed before low power focused on protection of persons *off site*. The Statement of Considerations for the 1982 rule change gave no clear and consistent rationale for why the particular element dealing with public notification should be included. The foundation for that rulemaking was the Commission's determination, described in more detail below, that the degree of emergency planning and preparedness necessary to provide adequate protection of the public health and safety is significantly less than that required for full power operation in light of the significantly lower risks associated with even low likelihood accidents at that stage (47 FR 30233 and note 1). Thus, the stated rationale for the 1982 rule would seem to undercut the need for any prompt public notification requirement.

The Commission indicated in 1982 that, although at low power plant operators typically have less experience and there is a greater potential for undiscovered defects, the risk to public health and safety at low power is significantly lower than at full power as a result of several factors. Those reasons were stated by the Commission as follows: First, the fission product inventory during low power testing is much less than during higher power operation due to the low level of reactor power and short period of operation. Second, at low power there is a significant reduction in the required capacity of systems designed to mitigate the consequences of accidents compared to the required capacities under full power operation.

Third, the time available for taking actions to identify accident causes and mitigate accident consequences is much longer than at full power. This means that operators should have sufficient time to prevent a radioactive release from occurring. In the worst case, the additional time available (at least 10 hours), even for a postulated low likelihood sequence which could eventually result in release of the fission products accumulated at low power into the containment, would allow adequate precautionary actions to be taken to protect the public near the site (47 FR 30233).

The safety basis for the 1982 rule was reviewed as a necessary part of the instant proposed rulemaking. The Commission reexamined the need at low power to review those aspects of applicants' onsite plans that seem relevant only to offsite protective measures that might be needed if there were an accident with offsite dose effects (53 FR 16436-7). The proposed

rule indicated that the Commission saw no need to review those aspects of applicants' plans that did not have a direct relationship to onsite dose effects in light of the significantly less risk to offsite persons presented by fuel loading and low power testing as contrasted with full power operation. On reexamination in light of public comment, the Commission has reaffirmed the safety conclusion that the safety risk to the public from low power testing is significantly less than the risk to the public from full power operation. Accordingly, the rule is being issued in final form substantially as proposed. However, a number of changes have been made in the rule in response to public comments.

II. Analysis of Public Comments

Nearly 1700 comments were received on the proposed rulemaking. The overwhelming majority were from private citizens, mostly in the New England area. Comments also came from utilities, industry groups, State and local government agencies and officials, members of Congress, one Federal agency and several local and national environmental groups. The comments ran approximately two to one in favor of promulgation of the proposed rule. Of those opposed, approximately 500 were form letters from residents of the area surrounding the Seabrook nuclear power plant. The remaining 60 to 70 comments in opposition were from private citizens, State and local government officials and environmental groups. The comments in favor came primarily from private citizens, with a sprinkling from utilities, nuclear industry organizations, one local government official and one Federal agency.

Because of the large volume of comments received, it would be impractical to discuss each individually. The great majority of comments, both for and against the proposed rule, turned on the commenter's opinion on the impact of the rule on licensing the Seabrook facility. Most of the individuals who wrote in support of the rule expressed the opinion that the facility was ready to be licensed, that the power the facility would generate was needed, and that licensing should not be allowed to be held up by political forces. Most commenters in favor of the rule also expressed the opinion that the risks to the public from low power testing were considerably less than those from full power operation, and that prompt emergency notification to the general public should not be necessary at low power.

The significant comments against the rule fall within the scope of fifteen separate major comments. These major comments and the Commission's response to them are set forth below.

Comment 1. The risk assessments upon which the rule is based are based

on operation over a short time frame. However, there is no time limit for low power testing.

Response. For many years, Commission policy has been to issue separate "low power" licenses which allow a plant to load fuel and perform testing and operator training at power levels up to 5 percent whenever to do so would expedite the licensing process without prejudicing the rights of any intervening parties. The purpose of the low power test program is to demonstrate that the overall plant performance conforms to the established design criteria and to confirm the operability of plant systems and design features that could not be completely tested during the preoperational test phase. Tests that are performed during the program are specific to the type of light-water reactor (boiling water reactor versus pressurized water reactor), but typically include determination of in-core flux distribution, moderator temperature coefficients, control rod worths and adequacy of neutron instrumentation and associated protective functions. Also, during this time operators obtain some valuable additional training manipulating the controls of the reactor at low power levels. In practice, many of these tests and manipulations are performed with the reactor at less than 1 percent of rated power, and those tests and manipulations which are performed with the reactor at "peak" low power (typically 3 percent to 4 percent of rated power) are completed within a day or two. Based on experience with U.S. commercial power plant startup test programs, the period over which a reactor would actually operate at or near 5 percent power during the low power test program is expected to be at most a few weeks; likewise, operation at 5 percent power beyond these few weeks would not be economically feasible. The safety evaluation supporting this rule assumes that operation under the rule would be consistent with this prior history and practice. To further clarify this point, low power licenses issued under this rule will be for purposes of fuel loading and low power testing and operator training only: steady-state operation at or near 5 percent for the full license term would not be authorized.

Comment 2. The technical basis for both the current rule and the 1982 rule is flawed in that, at 5 percent power, substantial inventories of biologically significant fission products will be developed in from eight to forty days. Thus, while the inventory of all radionuclides developed during low power testing is reduced compared to full power operation, the inventory of radionuclides with public health significance still poses a substantial prompt public health hazard. In addition, the inexperience of the

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operators during low power testing and the newness of the system create a greater potential for undiscovered defects and incidents.

Response. Yes, there are some biologically significant fission products generated in the reactor core during the low power operation contemplated by this rule. But, although during low power testing plant operators typically have less experience and there is a greater potential for undiscovered defects, the risk at low power is still sufficiently low to provide reasonable assurance that public health and safety is protected even in the absence of the requirement for a prompt notification system and other purely offsite elements of emergency plans. This is a result of three factors, which were stated earlier by the Commission and which the Commission reaffirms in this rulemaking as follows: First, the fission product inventory during initial low power testing is much less than during higher power operation due to the low level of reactor power and short period of operation at this power level. The available inventory of fission products that are significant contributors to public health consequences would be reduced by about a factor of 20 for continuous operation at 5 percent power compared to continuous full power operation. However, as explained above, based on experience with commercial nuclear power plant startup test programs, operation at or near 5 percent power is only expected for a maximum of a few weeks. This would result in a further reduction in available fission product inventory. Second, at low power there is a significant reduction in the required capacity of systems designed to mitigate the consequences of accidents compared to the required capacities under full power operation. For example, the coolant flow required to dissipate decay heat at 10 hours following a loss of coolant accident in a typical pressurized water reactor would be less than 10 gallons per minute, which is well within the capacity of normal make-up systems. Most of the regulatory requirements for safety systems during reactor power operation, including containment integrity, emergency core cooling, and redundant power supplies, are the same for 5 percent power operation as they are for 100 percent power. Third, the time available for taking actions to identify accident causes and mitigate accident consequences is much longer than at full power. This means the operators should have sufficient time to prevent a radioactive release from occurring.

The above safety evaluation makes no assumptions about the time that would be needed to notify the public off site and to implement an offsite emergency response if one would assume

hypothetically that an offsite release would occur: it is based solely on an analysis of the likelihood that an offsite release could occur and of the possible magnitude of that release. However, as an additional, separate consideration, the Commission also believes that, in the worst case, the additional time available (at least 10 hours), even for a postulated low likelihood sequence which could eventually result in release of the fission products accumulated at low power into the containment, would allow notification of both onsite and offsite emergency response organizations. These organizations would likely have adequate time to implement some offsite response should that be necessary. Without a prompt public notification system in place and an approved and tested offsite emergency plan, there obviously cannot be the same kind of reasonable assurance of offsite protective measures that there would be with a fully reviewed and tested offsite emergency plan should there be an offsite release at low power. However, given the extremely low likelihood of any accident resulting in significant offsite releases, the requirements for procedures to notify emergency response organizations and the additional time that will likely be available would provide sufficient time for the emergency response organizations to implement some form of public notification and to carry out some reasonably effective offsite emergency response, even if such a release were to eventually occur.

Comment 3. Testing at low power is riskier than full power operation because it involves deliberately defeating safety systems.

Response. While some selected safety systems may be disabled during low power testing, the heat load and fission product inventory are significantly less than at full power. There are a number of methods available to remove this very low heat load generated at low power. In addition, special procedures are developed and followed for these tests, which are closely monitored by plant personnel. Therefore, because of the reduced heat load, small fission product inventory and special attention by plant operators, testing at low power does not place the plant at greater risk and presents a significantly lesser risk than does full power operation.

Comment 4. The Chernobyl accident occurred while the reactor was at low power. Why does the NRC still say that the risk of low power testing is low?

Response. The reactor physics characteristics of U.S. light-water reactors are very different from those of the graphite-moderated RBMK type of reactor at Chernobyl. Positive void (and moderator temperature) coefficients,

which played a central role in the accident at Chernobyl, are generally absent in U.S. reactors. Where they are present, they have a limited reactivity insertion potential, which precludes their causing any significant reactivity transient and power level increase. Substantial required shutdown reactivity margins in conjunction with fast automatic insertion of control rods on signals indicative of unsafe conditions provide protection against the occurrence of reactivity excursions, such as that which took place at Chernobyl, in commercial U.S. reactors. U.S. light-water reactors do not have the inherent potential to rapidly elevate their reactor power to levels at which plant risk becomes significant. Additionally, the Chernobyl reactor operated at full power prior to its accident. Therefore, the buildup of fission product inventory was much higher than the buildup of fission product inventory at U.S. reactor operating under a fuel loading or low power testing license.

Comment 5. Low power licensing fails the cost-benefit analysis required by NEPA.

Response. This issue falls outside the scope of this rulemaking, which is only designed to address the requirements under the Atomic Energy Act for emergency planning at fuel loading and low power. The establishment of these safety requirements does not have a significant environmental impact under NEPA. The question of the correct NEPA analysis to be done in support of a low power license for any specific facility is made by case-by-case determination, and is not the subject of this rulemaking.

Comment 6. A low power license should not be issued where it is not certain that a full power license will ever be granted. The Shoreham reactor was irradiated unnecessarily.

Response. This again is an issue that is not the subject of this generic rulemaking. In the past the Commission has addressed this issue in individual adjudicatory opinions, e.g., *Long Island Lighting Company* (Shoreham Nuclear Power Station), CLI-85-12, 21 NRC 1587 (1985), and does not believe that the issue warrants resolution generically by rulemaking.

Comment 7. The proposed rule states that the safety analysis performed in 1982 is still valid. After performing that analysis, the NRC decided to require that certain offsite aspects of emergency plans be in place prior to low power licensing. The NRC has given no rationale for changing the rule, while admitting that the previous analysis is valid.

Response. One reason for this rule change is to clarify language in the rule itself that can easily be read to suggest that *no* offsite emergency planning elements need to be reviewed prior to

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fuel loading or low power testing. The 1982 safety analysis supported the proposition that those offsite aspects of emergency planning which are pertinent to protecting persons on site need be considered prior to low power. This rule change will incorporate this important safety consideration.

The provision in the 1982 rulemaking which is being reconsidered is the provision in the Supplemental Information that systems for prompt notification of the public in the event of an accident should be in place and reviewed at low power. However, this change is consistent with the 1982 safety analysis. Plans will still be required for notification of offsite planning and response agencies so that these agencies and licensees may, as appropriate, keep the media and the public informed. But given the relatively low risk to the public from low power operation, a requirement for prompt notification of the public is far in excess of what is reasonably needed. Nothing in the 1982 rulemaking logically supports the contrary.

Comment 8. The NRC has previously stated that review of the licensee's onsite response mechanism will necessarily include aspects of some offsite elements. Why is the NRC changing this position?

Response. See the Response to Concern 7. The NRC is not changing its expert conclusion as to the lower level of risk from low power operation. However, this rulemaking is a more logical result of this expert conclusion than the positions stated in the 1982 Supplemental Information.

Comment 9. The new rule does not address the risk of a terrorist attack or sabotage at low power.

Response. Prior to receiving a low power license, a licensee must fully meet the requirements of 10 CFR 73.55. These requirements assure the implementation of an acceptable security plan around a nuclear power plant. These are the same security requirements that a licensee must meet prior to receiving a full power license. While the risk from terrorism or sabotage cannot be quantified, it is the Commission's judgment that compliance with § 73.55 will reasonably assure that the risk from terrorism or sabotage at low power is sufficiently low so as not to undercut the conclusion that low power safety risks to the offsite public are relatively low.

Comment 10. The risks of an accident at low power are not confined to those onsite. If an accident were to occur at low power, public panic could ensue.

Response. The Commission responded to a similar comment in promulgating the 1982 rule. See Issue 6, 47 FR at 30234. The Commission is not unmindful that, regardless of the objective lack of danger, members of the public may be made uneasy and could panic

unnecessarily if an accident were to occur at low power. It was in response to this comment that the Commission agreed to review, and will continue to review, certain offsite notification elements of emergency plans prior to low power testing. In particular, prior to low power, means to keep state and local response organizations informed in the event of an onsite accident will be reviewed and approved. These organizations, through normal communication mechanisms, have the capability to inform the public, if needed, in order to avert panic. However, the Commission has found that the immediate direct notification of the public called for by the language in the 1982 rule preamble is far in excess of what is necessary to keep the public informed.

Comment 11. The change in proposed § 50.47(d)(5) to modify the requirement for provisions for monitoring offsite consequences from "in use" to "available" will create unacceptable delay in the identification of an actual or potential hazard to the public stemming from a radiological emergency.

Response. The final rule will retain the phrase "in use". The wording change in the proposed rule was not intended to change current NRC staff practice of reviewing licensee onsite plans to assure they meet the intent of § 50.47(b)(9) and Planning Standard I of NUREG-0654 prior to issuance of an operating license limited to fuel loading and low power testing. While the safety evaluation which supports the elimination of the prompt public notification requirement for low power suggests that an offsite release is extremely unlikely, the Commission still considers it prudent to have release monitoring equipment in use on site so that, at a minimum, the licensee is in a position to verify objectively that no release has occurred.

Comment 12. The original rule justified retention of emergency planning for research reactors, but not for commercial reactors, since research reactors were perceived to be located in areas of high population density. This contradicts the Commission's current posture that the relatively lower risks of low power testing justify elimination of offsite safety measures, since it concedes that there is an accident risk at low power serious enough that a research reactor (much smaller than a power reactor) needs a full emergency plan.

Response. The premise for the comment that research reactors with power levels approximating those of commercial nuclear power plants operating at 5 percent of full power are required to have approved offsite emergency plans is incorrect. Rather than requiring a "full emergency plan" for research reactors, the Commission's

regulations (10 CFR Part 50, Appendix E, 10 CFR 50.47(c), 10 CFR 50.54(q)) provide that emergency plan requirements will be determined on a case-by-case basis. In making this determination the guidance of NRC Regulatory Guide 2.6 and American National Standards Institute/American Nuclear Society 15.16 is used. In accordance with this guidance, and based on the relatively small risks posed by typical research reactors, (i.e., less than 50 megawatts) emergency planning involving offsite state and local plans and public notification has not been required. The guidance does, however, provide for consideration of more extensive planning, including all or a portion of the requirements listed in section IV of 10 CFR Part 50, Appendix E for research reactors with power levels greater than 50 megawatts. This graded approach to required emergency planning is consistent with the current rule.

Comment 13. The Atomic Energy Act prohibits authorization of low power testing prior to completion of public hearings on all issues material to full power licensing.

Response. This comment is more properly addressed to § 50.57(c), which provides for low power licenses and which is not being amended here. That section provides that a hearing is required prior to low power on those contentions "relevant to the activity to be authorized"—that is, low power testing, as opposed to full power operation.

Comment 14. The proposed rule was designed to allow the Seabrook facility to receive its low power license. The Commission should promulgate a rule to promote the public health and safety and not one designed to license a specific facility. The issue should be addressed in the pending Seabrook adjudication, not in a rulemaking.

Response. In the proposed rule, the Commission stated that its attention was focused on the emergency planning requirements for low power testing because of an Appeal Board decision in the Seabrook operating license proceeding, ALAB-883. And, for the near term, the only reasonably foreseeable effect of the rule change will be on the Seabrook low power application. But this does not make the use of rulemaking inappropriate. As the Commission explained, the rule change was proposed to correct a possible discrepancy between the language of the 1982 rule and the language of the Statement of Considerations which potentially affects all license applicants, not just the applicants for Seabrook. Also, the questions involved in the proposed rule are generic safety questions and the Commission preferred to obtain (and, in fact, did obtain) a broad spectrum of public comment, rather than just the comments of the litigants in the Seabrook proceeding.

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The Commission is free to address a generic issue generically, even if the rule change may currently apply only to one facility. See, e.g., *Siegel v. Atomic Energy Commission*, 400 F.2d 778 (D.C. Cir. 1968). Also see *Securities and Exchange Commission v. Chenery*, 332 U.S. 194, 202 (1947) (choice of how to proceed lies within the informed discretion of the agency).

The rule is not intended to overrule *Public Service Company of New Hampshire, et al.* (Seabrook Station, Units 1 and 2), CLI-87-2, 25 NRC 267 or CLI-87-3, 25 NRC 875 (1987).

Comment 15. Members of the public may need immediate medical attention in the event of an accident at low power. The new rule does not provide that arrangements for medical services will be in place for those off site.

Response. The purpose for the requirement in 10 CFR 50.47(b)(12) that arrangements for medical services be made was described in the "SUMMARY" section of the Commission's policy statement on medical services (51 FR 32904) dated September 17, 1986, as follows:

The Nuclear Regulatory Commission ("NRC" or "Commission") believes that 10 CFR 50.47(b)(12) ("planning standard (b)(12)") requires pre-accident arrangements for medical services (beyond the maintenance of a list of treatment facilities) for individuals who might be severely exposed to dangerous levels of offsite radiation following an accident at a nuclear power plant.

However, it is highly unlikely that members of the general public would be exposed to dangerous levels of radiation following an accident at low power. Therefore, the safety premise for the full power requirement that arrangements be made for medical services does not apply to fuel loading or low power testing.

Conclusion

As indicated in the responses to the comments, the Commission has decided to proceed with the proposed rule change with some clarifications and modifications. The rule reconciles a discrepancy between the language of the Commission's 1982 emergency planning rule change and the language of the Supplemental Information and provides an interpretation of that rule which appears to be fully consistent with the Commission's goals and safety conclusions in 1982. The majority of the public, as expressed in the comments, supports the rule. The comments opposing the rule have given no sound reasons for the Commission to alter its basic course.

Finding of No Significant Environmental Impact: Availability

The Commission has determined that under the National Environmental Policy Act of 1969, as amended, and the

Commission's regulations in Subpart A of 10 CFR Part 51, this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW., Washington, DC 20555.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW., Washington, DC. Single copies of the analysis may be obtained from Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone (301) 492-3918.

Regulatory Flexibility Certification

This final rule will not have a significant impact on a substantial number of small entities. The final rule will reduce or at least postpone the burden on NRC licensees by reducing the process required before a low power license may be granted. Nuclear power plant licensees do not fall within the definition of small businesses in section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administration in 13 CFR Part 121, or the Commission's Size Standards published at 50 FR 50241 (Dec. 9, 1985). Therefore, in accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that the final rule will not have a significant economic impact on a substantial number of small entities and that, therefore, a regulatory flexibility analysis need not be prepared.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting record keeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adopting the following amendments to Part 50.

53 FR 42939
Published 10/25/88
Effective 10/25/88

10 CFR Part 50

Licensee Announcements of Inspectors

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to ensure that the presence of NRC inspectors on nuclear power reactor sites is not widely communicated or broadcast to licensee and contractor personnel without the expressed request to do so by the inspector. This change will allow the NRC inspectors, badged at the facility, to observe ongoing activities as they are being performed without advanced notification of the inspection to licensee and contractor personnel. There is a need for this change because of the possible altering of attention and performance levels of a licensee and/or its contractors when the licensee is aware of NRC surveillance. Past occurrences where site and/or contractor personnel have been notified of NRC's presence on site have heightened concern in this area.

EFFECTIVE DATE: October 25, 1988.

FOR FURTHER INFORMATION CONTACT: George Barber, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-1234.

SUPPLEMENTARY INFORMATION:

I. Background

By clarifying the meaning and intent of 10 CFR 50.70(b)(3), this final rule should ensure that NRC inspectors will be granted immediate and unannounced access to licensee facilities so as to provide the inspector with unfettered access equivalent to that provided a regular plant employee following proper identification and compliance with applicable access control procedures. This rule provides that no access control measures or other means may be employed by the licensee or its

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contractors to intentionally give notice to other persons of the arrival and presence of an NRC inspector at a facility, unless the licensee is specifically requested to do so by the NRC inspector. There have been instances in the past at several facilities that compromised the ability of properly badged NRC inspectors to inspect and access, on an unannounced basis, activities related to the license or construction permit when licensee employees or contractor employees informed others at the facility of the presence of the NRC inspectors. This change to 10 CFR 50.70 is to clarify that NRC inspectors, badged at the facility, have immediate, unescorted access to ongoing activities as these activities are being performed without advanced notification of the inspection. This is especially important during non-normal business hours when operating personnel might assume NRC inspectors would not be on site.

II. Summary of Comments

On March 18, 1988, the Commission published in the *Federal Register* (53 FR 8924) a notice of proposed rulemaking on "Licensee Announcement of Inspectors." The Commission invited the public to comment on the proposed rule and received six letters of comment by April 18, 1988 (the specified closing date for public comments). After April 18, 1988, 26 additional letters of comments were received. All 32 letters of comments were considered in NRC's review of this final rule. The comments are discussed below.

Comment. A majority of the commenters believed the rule was unnecessary and characterized it as being too broad and vague. They asserted that it was redundant with current regulations; would lead to unfair and impractical enforcement; be impossible to implement; inhibit inspector assistance by plant personnel; limit the ability of facility management to perform their safety functions; promote lying among the facility staff; require formal training and recordkeeping; and indicates a distrust of licensees.

NRC Response. NRC does not agree with the comments, but to ensure that the intent of the rule is clear and focused, adds the following clarification of the rule. The intent of this rule is to prevent site and contractor personnel from widespread dissemination or broadcasting the presence of an NRC inspector. Broadcasting, as used here, is defined as unsolicited one-way communications. Implementing or enforcing this rule should be no more difficult than implementing or enforcing any rule that involves personnel performance.

Adopting this rule does not indicate a predisposition on the part of the NRC

that licensees are not acting properly. It is human nature for an individual to be more conscious of his or her performance when the individual realizes he or she is being observed. The NRC inspection program evaluates licensee performance on the basis of a sampling of its activities. It is critical that the sampling portion of the licensee's activities that are relied upon for this evaluation be representative of its overall activities. Therefore, the rule is more prophylactic than proscriptive, although it does carry enforcement sanctions should it be violated. Recognizing the possibility of inadvertent communication of an inspector's presence, the NRC expects to reserve enforcement action for significant intentional violations of the rule. An honest response by an employee to an innocent inquiry that he/she just saw an NRC inspector is not within the proscriptive perimeter of the rule. Therefore, an employee would not be required to lie, in response to a question, about the presence of an NRC inspector. Based on this discussion, formalized training will not be necessary, and NRC Form 3 need not be modified to reflect this requirement.

The NRC does not agree that this rule will prevent management from performing its safety functions. It should be noted the rule does not affect software security systems which monitor the presence of persons in certain areas. Such systems should provide the licensee with needed information on space occupancy in the case of an emergency or evacuation. For those licensees who have these systems in place, or will put them in place, the rule does not affect such systems. If a licensee were, however, to design or modify these systems (or use them) for the purpose of monitoring the NRC inspector's movements in order to alert other plant personnel of the inspector's whereabouts, those actions would violate the rule.

In sum, the licensee is prohibited from taking affirmative action which would compromise the NRC inspector's mission of gaining unfettered access to the plant and its various areas of interest to the inspector.

Comment. Some commenters expressed a concern that the rule could raise Constitutional questions under the First and Fourth Amendments.

NRC Response. As discussed above, the purpose of the rule is to enhance the credibility of the inspection process. Inspections are specifically authorized under section 1610 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2201(o). The regulation is narrowly drawn to achieve a legitimate governmental interest (effective NRC inspections) without infringing on an individual's right to express ideas and opinions on any subject. Thus, the

regulation does not impermissibly intrude upon freedom of speech protected by the First Amendment to the Constitution.

The regulation does not raise any significant Fourth Amendment considerations. The Atomic Energy Act creates a pervasive regulatory scheme that puts licensees on clear notice that they will be subject to inspection, and the granting of a license is conditioned on consent to reasonable inspections. Thus, NRC inspections of licensees' premises, activities and records do not require a warrant under the Fourth Amendment. *United States Nuclear Regulatory Commission vs Radiation Technology, Inc.*, 519 F. Supp. 1266, 1288-91 (D.N.J. 1981); *Union Electric Co. (Callaway Plant, Units 1 & 2)*, ALAB-527, 9 NRC 126, 139-41 (1979). The new regulation is a reasonable exercise of the Commission's inspection authority. Inspectors will continue to identify themselves and comply with other reasonable access control measures and, as always, inspections will be conducted for purposes authorized under the Atomic Energy Act and the Energy Reorganization Act. The regulation does not run afoul of the Fourth Amendment to the Constitution.

Comment. A number of commenters suggested that the rule be implemented only by written request of the NRC inspector.

NRC Response. NRC rejects the suggestion. With this suggested modification, the rule would only apply to those individuals who had been given notice of the NRC inspector's presence on site. If implemented, this suggestion would defeat the intent of the rule.

Environmental Impact: Categorical Exclusion

The NRC has determined that this change is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

The final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

This final rule will have no significant impact on state and local governments and geographical regions. It may have a significant impact on health, safety, and the environment, but only in the sense of preventing adverse impacts on health, safety, and the environment through more effective inspections. The rule will

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make it clear that NRC inspectors are to have a realistic picture of the actual conditions at a site during the inspection process and, therefore, be better able to identify potentially dangerous conditions and/or practices for corrective action and to ensure that licensees comply with laws, regulations, and orders administered by the NRC. This constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. The final rule applies only to licensees authorized to construct or operate nuclear power reactors, who are not small business entities within the meaning of the act or implementing regulations. Therefore, a regulatory flexibility analysis has not been prepared.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does apply to this final rule. The backfit analysis for announcement of inspectors rule in accordance with each of the factors specified in 10 CFR 50.109(a)(4)(ii)(c) is as follows:

(1) This rule provides that no means may be employed by the licensee or its contractors to intentionally give notice to other persons of the arrival and presence of a NRC inspector at a facility, unless the licensee is specifically requested to do so by the NRC inspector.

(2) The licensee will have to communicate the requirements of this rule to its personnel and to contractor personnel working at its site.

(3) The purpose of this rule is to enhance the credibility of the inspection process. By requiring that the presence of NRC inspectors (either resident or off site) is not announced, the NRC, public and licensees will have more confidence that the activities inspectors are witnessing are representative of licensee performance. Ensuring that NRC inspectors are witnessing representative licensee performance could substantially increase the likelihood that NRC inspectors will discover unsafe or potentially unsafe practices, bring about corrective actions and thereby lower the risk of accidents occurring which could lead to the accidental off-site release of radioactive material.

It is not possible, without before and after data, to quantitatively evaluate the benefits of implementing this rule. Still, a recent significant enforcement action concerning licensee employee's inattention to duty demonstrates the premise advanced in the above

paragraph. In this enforcement action, over 30 licensee personnel, both management and staff were cited for inattention to duty. The primary concern was sleeping on watch. It is not difficult to envision accidents that could occur because of this type of licensee performance.

Coupling inattention to duty with equipment failure adds a new dimension to the risk of accidents occurring which could lead to the off-site release of radioactive material. In the enforcement action mentioned above, had the licensee announced the presence of the NRC inspector, the inattention to duty would have gone unnoticed. It should be noted that the licensee facility where this incident occurred did, on one past occasion, announce the presence of NRC inspectors.

(4) Not appropriate. There is no radiological exposure of facility employees resulting from the rule's implementation.

(5) Very minor costs are associated with the rule's implementation. There are no training requirements or record keeping requirements associated with this rule. The only cost to the licensee would be communicating this rule to its employees and contractors.

(6) Not appropriate. There is no potential safety impact of changes in plant or operational complexity associated with this rule.

(7) Not appropriate. There is no resource burden on the NRC from the implementation of this rule.

(8) Not appropriate. There is no potential impact of differences in facility type, design or age on the relevancy and practicality of the proposed backfit.

(9) The proposed backfit is final.

Conclusion

Based on the above analysis, the Commission concludes that there is a substantial increase in the overall protection of the public health and safety or the common defense and security to be derived from this backfit and that the direct and indirect costs of implementation for facilities are justified in view of this increased protection.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is to adopt the following amendment to 10 CFR Part 50.

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

53 FR 45890
Published 11/15/88
Effective 11/15/88

10 CFR Part 50

Alternative Method for Leakage Rate Testing

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to modify the requirements applicable to the leakage testing of containments of light-water-cooled nuclear power plants. The rule explicitly permits the use of a new statistical data analysis technique that the NRC considers to be an acceptable method of calculating containment leakage rates in addition to previously acceptable methods.

EFFECTIVE DATE: November 15, 1988.

FOR FURTHER INFORMATION CONTACT: Mr. E. Gunter Arndt, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-3814.

SUPPLEMENTARY INFORMATION:

Background

The Nuclear Regulatory Commission is amending 10 CFR Part 50, Appendix J, "Primary Containment Leakage Testing for Water-Cooled Power Reactors," to explicitly permit the use of the Mass Point statistical data analysis method for calculating containment leakage rates. The Mass Point method involves calculation of the air mass at a series of points in time and the plotting of mass against time. A linear regression line is plotted through the mass-time points using a least squares fit. The slope of this line is divided by the intercept of this line, and the result is multiplied by an appropriate constant to obtain the calculated leakage rate.

This Mass Point method was incorporated in a newer ANSI standard, ANSI/ANS-56.8-1981, "Containment System Leakage Testing Requirements" (revised 1987) and in fact has been accepted by the NRC staff as an improved alternative method of calculating containment leakage rates. However, it was recently recognized by the NRC staff that a strict interpretation of the specific wording of Appendix J, III.A.3, by referencing only the older ANSI standard, would preclude use of

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the newer, improved method. To alleviate this restriction on the use of an improved alternative methodology, it is necessary to clarify the language in Section III.A.3 to explicitly permit the use of the newer Mass Point method in addition to the earlier methods covered by ANSI N45.4-1972.¹

A proposed rule concerning the addition of the Mass Point method was published for comment on February 29, 1988 (53 FR 5985). The complete history and background for the proposed action were discussed in detail in the **SUPPLEMENTARY INFORMATION** section which accompanied the proposed rule. The effect of this amendment will be to permit licensees to use the Mass Point analysis as an alternative to the Total Time and Point-to-Point analyses incorporated by reference into Appendix J by ANSI N45.4-1972.

The final rule is identical to the proposed rule published for comment, and adds the following words to Section III.A.3:

In addition to the Total Time and Point-to-Point methods described in that standard, the Mass Point method, when used with a test duration of at least 24 hours, is an acceptable method to use to calculate leakage rates. A typical description of the Mass Point method can be found in the American National standard, ANSI/ANS 56.8-1987, "Containment System Leakage Testing Requirements", January 20, 1987.

Also, as in the proposed rule, in order to allow a change in the methods now permitted, the final rule deletes the following sentence from Section III.A.3 of Appendix J:

The method chosen for the initial test shall normally be used for the periodic tests.

The NRC believes the wording of the revision as published for comment, and as finally amended, clearly and accurately represents the NRC's position. All comments have been reviewed. In spite of the objections raised in the comments to the wording or content of the proposed rule, the wording in the final rule is identical to that published for public comment. A Public Comment Resolution Memo has been prepared and sent to all who commented. It is available for inspection and copying at the NRC's Public Document Room at 2120 L Street, Washington, DC. The memo addresses in more detail the NRC's decision to

keep the wording the same as in the proposed revision. A brief summary of the comments received is set out in the following paragraphs.

Summary of Public Comments

Twenty-one comment letters were received. In general, three principal comments were presented.

First, all commentators supported the addition of the Mass Point analysis to the list of acceptable analysis methods.

Second, all but two commentators objected to requiring a 24-hour test duration in combination with the Mass Point method.

As noted in the proposed rule of February 29, 1988, the position stated in the text is consistent with the position that has been taken by the NRC staff when granting exemption requests on this matter. In particular, the description of the Mass Point method and its coupling with a test duration of at least 24 hours reflect prior exemption approvals and maintain necessary consistency.

The intent of this limited amendment is not to endorse ANS 56.8, nor to propose any of the changes and updating represented by the October 29, 1986 proposed general revision to Appendix J (51 FR 39538). Instead, this action does no more than eliminate the need for exemptions to the existing rule by permitting the use of a statistical method that has been generally accepted for several years. This revision makes available to all reactor licensees the use of the Mass Point method for 24-hour tests.

Inclusion of the 24-hour duration is considered necessary because a considerable difference of opinion exists as to what is a sufficient test duration. Until an acceptable set of alternative technical criteria is developed to replace the 24-hour duration criterion, the NRC staff intends to continue the 24-hour criterion. Some alternative technical criteria were presented for public review and comment in proposed regulatory guide MS 021-5, "Containment System Leakage Testing,"² on October 28, 1986. These criteria and others proposed are still being evaluated in order to determine what is an appropriate set of test termination criteria to include in the final regulatory guide.

Third, one objection was raised to the degree of flexibility permitted by the proposed wording in defining the Mass Point method.

If this comment were to be followed, the effect would be to incorporate by reference into 10 CFR Part 50 the exact Mass Point analysis as defined in ANSI/ANS 56.8-1987, along with the portions of that standard that are relevant to setting the conditions of use of this analysis. The existence of proposed regulatory guide MS 021-5 demonstrates that this degree of compatibility between ANS 56.8 and a position acceptable to the NRC staff does not exist. Therefore, in order to define in detail a Mass Point analysis that would be acceptable to the NRC staff, such an incorporation by reference would also have to contain the portions of proposed Regulatory Guide MS 021-5 that modify the ANS 56.8 definition and use of the Mass Point analysis. This approach would be undesirably cumbersome, inflexible, and restrictive in the ability to keep the legally acceptable Mass Point analysis current with any future improvements, simplifications, or changes in the state-of-the-art of statistical reduction of test data to a leakage rate.

An alternative perhaps could be to simply state that the Mass Point method be defined in a manner acceptable to the NRC staff, and leave that definition to the finalization of proposed regulatory guide MS 021-5. However, this would probably be a less acceptable alternative because it would be more flexible than the current wording and would depend heavily on the as yet unissued regulatory guide.

Finally, as noted in the proposed rule of February 29, 1988, the wording was intentionally made instructive but flexible in the event that the proposed general revision to Appendix J and its proposed associated regulatory guide are not issued as final documents. Should that happen, then a clear need would exist for some flexibility in the ability of Appendix J to keep up with changes to ANS 56.8 and potential future modifications to the Mass Point analysis.

Effective Date

Since the amendment set forth below is intended to provide relief from, rather than to impose, restrictions currently in effect, the Commission is, pursuant to 5 U.S.C. 553(d)(1), making the final rule effective on November 15, 1988 without the customary 30-day waiting period.

Environmental Impact: Categorical Exclusion

The Commission has determined that this rule is the type of action described in the categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment have been prepared for this rule.

¹ ANSI N45.4-1972, "Leakage Rate Testing of Containment Structures for Nuclear Reactors" (dated March 16, 1972). Incorporation of ANSI N45.4-1972 by reference was approved by the Director of the Federal Register on October 30, 1972. Copies of this standard, as well as ANSI/ANS-56.8-1987, "Containment System Leakage Testing Requirements" (dated January 20, 1987) may be obtained from the American Nuclear Society, 555 North Kensington Avenue, La Grange Park, IL 60525. A copy of each of these standards is available for inspection at the Commission's Public Document Room at 2120 L Street NW., Washington, DC.

² A free single copy of draft regulatory guide MS 021-5, to the extent of supply, may be obtained by writing to the Distribution Section, Document Control Branch, Division of Information Support Services, U.S. Nuclear Regulatory Commission, Washington, DC 20555. A copy is also available for inspection, or copying for a fee, in the NRC Public Document Room, 2120 L Street NW., Washington, DC.

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Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved under the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 2120 L Street NW., Washington, DC.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule effects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in the regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this rule because, although the rule is applicable to all current or future operating nuclear power plants, the provisions of the rule codify and permit the continuation of a previously accepted practice. This action will not encumber those using this accepted practice with the added burden of seeking exemptions to the existing rule.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR Part 50.

54 FR 7178

Published 2/17/89

Effective 3/20/89

10 CFR Part 50

Licensee Action During National Security Emergency

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to allow a licensee to take action that departs from approved technical specifications in a national security emergency. The amendment is necessary to specify in the regulations that for a national security emergency a licensee is permitted to take a needed action although it may deviate from technical specifications. This amendment will allow the licensee to implement national security objectives as designated by the national command authority through the NRC.

EFFECTIVE DATE: March 20, 1989.

FOR FURTHER INFORMATION CONTACT:

Joan Aron, Office for Analysis and Evaluation of Operational Data, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 492-9001.

SUPPLEMENTARY INFORMATION:

Background

On April 1, 1983, the Commission published in the Federal Register (48 FR 13966), a final rule that set out § 50.54 of 10 CFR entitled, "Conditions of Licenses," that contains a provision permitting a licensee to take reasonable action that departs from a license condition or a technical specification (contained in a license issued under this part) in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. However, this provision does not apply to a national security emergency. The final rule in this notice allows a licensee to take action that departs from approved technical specifications in a national security emergency when this action is immediately needed to implement national security objectives as designated by the national command authority through the NRC and no action consistent with license conditions and technical specifications that can meet national security objectives is immediately apparent. The rule was published for comment on July 19, 1988 (53 FR 27174). A thirty-day comment period expired on August 18, 1988. Comments were received from four respondents.

Summary of Public Comments

A summary of the public comments follows:

(1) *Flexibility.* One commenter, writing on behalf of the nuclear power industry, supported the proposed amendment, stating that it provides licensees with desirable regulatory authority and operational flexibility to accommodate exigencies that may be associated with a declared national emergency.

(2) *Need for the amendment.* One commenter questioned the need for the proposed amendment, claiming that §§ 2.204, 50.54(x), and 50.103 offer more than enough authority to permit a licensee to deviate from technical specifications during a national emergency when such action is needed to implement national security objectives.

The final rule does not duplicate existing requirements. Section 2.204 deals with the Commission's ability to issue an order for modification of a licensee and § 50.103 deals with the Commission's ability to suspend a license, recapture special nuclear material or order the operation of a facility during a state of war or national emergency. Paragraph (x) of § 50.54 grants authority to nuclear power plant licensees to take reasonable action that departs from a license condition or a technical specification in an emergency when such action is necessary to protect public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. The amended rule provides the same flexibility to licensees but for the purpose of attaining national security objectives during a declared national security emergency.

(3) *Implementation.* One commenter questioned the lack of discussion relative to implementation requirements and suggested a delay in issuing the final rule until proper implementation guidance can be formulated.

The final rule provides a basis for the licensee to take action in accordance with governmental directives in a national security emergency, when this action is immediately needed to implement national security objectives as designated by the national command authority through the NRC and no action consistent with license conditions and technical specifications that can meet national security objectives is immediately apparent. Guidance concerning implementation will be formulated by the appropriate federal agencies and will be issued some time in the future.

(4) *Definition of a "national security emergency."* One commenter requested definition of a "national security emergency."

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NRC Manual Chapter 0601, Continuity of Government Program, approved June 30, 1988, defines a national security emergency as "any occurrence, including nuclear attack, a national disaster, or other emergency, which seriously degrades or seriously threatens the national security of the United States or has been declared by the Congress." A national security emergency is established by a law enacted by the Congress or by an order or directive issued by the President pursuant to statutes or the Constitution of the United States.

(5) *Reporting requirements.* One commenter suggested that § 50.73(a)(2)(c) be revised to include the reporting requirements of the amended § 50.54(dd).

At present, there is no reporting requirement include in § 50.54(dd) and none is contemplated for the immediate future. Thus, there is no need to revise 10 CFR 50.73(a)(2)(c).

Environmental Impact: Categorical Exclusion

The NRC has determined that this final regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this proposed regulation.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to The Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011

Regulatory Analysis

The Commission previously has granted authority pursuant to 10 CFR 50.54(x) to nuclear power reactor licensees to take reasonable action that departs from a license condition or a technical specification in an emergency when the action is immediately necessary to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This final rule will provide the same flexibility to licensees for the purpose of attaining national security objectives in accordance with governmental directives during a declared national security emergency. The final rule does not significantly impact state and local governments and geographic locations; health, safety, and the environment; or costs to licensees, the NRC, or other Federal agencies. The final rule is in the interest of the common defense and security of the United States because it would facilitate

operation of nuclear facilities in a national security emergency during which some deviation from facility technical specifications may be appropriate. This constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. The final rule affects only licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121. Because these companies are dominant in their service areas, this rule does not fall within purview of the Act.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule and, therefore, that a backfit analysis is not required for this rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified Information, Fire Protection, Incorporation by Reference, Intergovernmental Relations, Nuclear power plants and reactor, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 50.

54 FR 11161
Published 3/17/89
Effective 3/17/89

10 CFR Part 50

Extension of Time for the Implementation of the Decontamination Priority and Trusteeship Provisions of Property Insurance Requirements

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending the implementation schedule to change the effective date for the stabilization and decontamination priority and

trusteeship provisions of its property insurance regulations. This delay in implementation is necessary because the insurers that offer property insurance for power reactors have informed the Commission that they will be unable to include the stabilization and decontamination priority and trusteeship provisions in their insurance policies within the date required by current regulations. Concurrently, the extension of the effective date of the rule allows the NRC to consider three petitions for rulemaking that propose changes to improve the efficacy of the NRC's stabilization and decontamination priority and trusteeship provisions.

EFFECTIVE DATE: March 17, 1989.

FOR FURTHER INFORMATION CONTACT: Robert S. Wood, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-1280.

SUPPLEMENTARY INFORMATION:

I. Background

On September 19, 1988, the Commission published a proposed rule in the *Federal Register* (53 FR 36338) that proposed to amend the implementation schedule for the stabilization and decontamination priority and trusteeship provisions of its property insurance regulations contained in 10 CFR 50.54(w)(5)(i) to change the effective date from October 4, 1988, to April 4, 1990. As explained in the proposed rule, this implementation schedule was part of a final rulemaking published on August 5, 1987 (52 FR 28963) which, for the first time, explicitly required power reactor licensees to purchase on-site property damage insurance policies in which \$1.8 billion of the proceeds from these policies are to be used first for stabilization of a reactor after an accident and then for decontamination of the facility before any other purpose. The 1987 final rule also required that these insurance proceeds be paid to an impartial trustee who would be required to disburse funds according to the stabilization and decontamination priority.

Subsequent to the publication of the 1987 final rule, the NRC was informed that the trusteeship provision and, to a lesser extent, the stabilization and decontamination priority provisions of that rule were sufficiently complex and problematic that the insurers were unable to incorporate such provisions in their policies by the required October 4, 1988, date.

As explained in the September 19, 1988, proposed rule, the insurers and their counsel gave two reasons why they were unable to comply with the date specified in the final rule for adding the stabilization and decontamination priority and trusteeship provisions. First,

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with respect to the trusteeship provision, counsel for insurers assured the NRC staff that they had made a good-faith effort to obtain trustees, but were unsuccessful. They believed the reason for their lack of success was the potential trustees' conflicts of interest and reluctance to assume, on the one hand, responsibility for disbursing potentially over \$1 billion in insurance proceeds and the resulting exposure to possible litigation for wrongful disbursement, while, on the other hand, being eligible for only modest fees for this service.

A second reason insurers gave for being unable to comply with the effective date of the 1987 rule was essentially logistical. As a contract, an insurance policy can only be modified with the consent of all affected parties. Because the Commission's mandated stabilization and decontamination priority and trusteeship provisions adversely affect the current rights under the policy of the bondholders' trustee, it is unlikely that policies could be legally changed before the end of the policy years. Because of insurers' policy renewal procedures and the policy anniversaries, these dates would have fallen after the effective date specified in the rule.

II. Summary of Comments, NRC Response and Conclusions

By the end of the comment period on October 19, 1988, the NRC received five comments. One of these was misdirected to this rulemaking. (Comment 1 was directed to rescinding § 50.54 (x) and (y) rather than § 50.54(w).) The remaining four either supported the proposed rulemaking (comment 4) or sought clarification of the applicability of 10 CFR 50.54(w)(5)(i) to specific licensees while the rulemaking was being considered (comments 2, 3, and 5). In addition, comment 4 suggested that, rather than provide a date certain in the rule, the stabilization and decontamination priority and trusteeship provisions of § 50.54(w) (3) and (4) be suspended indefinitely pending completion of consideration of three petitions for rulemaking (PRM-50-54, PRM-50-51A, and PRM-50-51B; 53 FR 36335, September 19, 1988).

The only issue of any controversy raised by commenters was whether the extension of time for implementing the stabilization and decontamination priority and trusteeship provisions of § 50.54(w) should be for a date certain (i.e., April 4, 1990) or indefinite until consideration of the above-cited petitions for rulemaking has been completed. The Commission continues to believe that an 18 month extension is more appropriate than an open-ended extension. First as commenter 4 acknowledged, 18 months should be

sufficient to complete consideration of the issues raised in the three petitions for rulemaking. Second if 18 months is insufficient, the Commission can act to further extend the implementation date. Finally, the Commission imposed the stabilization and decontamination priority and trusteeship provisions for valid health and safety reasons. Indefinitely deferring these provisions prior to a substantive reevaluation of their efficacy could conflict with the Commission's mandate to protect health and safety. The proposed rule analyzed why an 18 month delay would have minimal health and safety impact. The NRC believes that analysis remains valid.

For the foregoing reasons, the Commission concludes that a delay from October 4, 1988, to April 4, 1990, in the implementation schedule of the stabilization and decontamination priority and trusteeship provisions is justified and is amending 10 CFR 50.54(w)(5)(i) accordingly.

Because the amendment to § 50.54(w)(5)(i) relates solely to extending the time for implementing the stabilization and decontamination priority and trusteeship provisions of the property insurance rule and therefore provides relief from restrictions under regulations currently in effect, the Commission has found that good cause exists for making the rule effective on the date of publication in the *Federal Register* without the customary 30 day waiting period.

III. Environmental Impact: Categorical Exclusion

The NRC has determined that this rule constitutes a minor corrective amendment that does not substantially modify existing regulations and, therefore, is the type of action eligible for categorical exclusion under 10 CFR 51.22(c)(2). Accordingly, neither an environmental impact statement nor an environmental assessment is required.

IV. Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

V. Regulatory Analysis

On August 5, 1987, the NRC published in the *Federal Register* a final rule amending 10 CFR 50.54(w). The rule increased the amount of on-site property damage insurance required to be carried by NRC's power reactor licensees. The rule also required these licensees to obtain by October 4, 1988, insurance policies that prioritized insurance proceeds for stabilization and

decontamination after an accident and provided for payment of proceeds to an independent trustee who would disburse funds for decontamination and cleanup before any other purpose. Subsequent to publication of the August 5, 1987 rule, the NRC was informed by insurers who offer nuclear property insurance that the decontamination priority and trusteeship provisions would not be able to be incorporated into the policies by the time required in the 1987 rule. In petitions for rulemaking, insurers' representatives further stated that the trusteeship provisions might actually have an effect counter to their intended purpose by delaying claims payment and thus possibly the cleanup process. By deferring implementation of these provisions by 18 months, the Commission is allowing sufficient time either to secure the required coverage or to reconsider the mechanism by which accident cleanup funds may be assured to be used for their intended purpose. Even without formal stabilization and decontamination priority and trusteeship provisions, NRC has authority to take appropriate enforcement action to order cleanup in the unlikely event of an accident. Thus, this rule will not have a significant impact on public health and safety. Furthermore, this rule will not have significant impacts on state and local governments and geographical regions; on the environment; or, create substantial costs to licensees, the NRC, or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this rule.

VI. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. The final rule affects only those companies licensed to operate nuclear powerplants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

VII. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule because this rule would not impose a backfit as defined in § 50.109(a)(1). Therefore, a backfit analysis is not required for this rule.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear powerplants and reactors, Penalty, Radiation protection, Reactor siting

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criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR Part 50.

54 FR 13361
Published 4/3/89
Effective 5/3/89

10 CFR Part 50

RIN: 3150-AC72

Flow Control Conditions for the Standby Liquid Control System in Boiling Water Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The NRC is amending its regulations to set forth conditions and considerations for determining reactivity control capacity for boiling water reactor standby liquid control systems. The changes are necessary to clarify the existing regulation.

EFFECTIVE DATE: May 3, 1989.

FOR FURTHER INFORMATION CONTACT: William R. Pearson, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3764.

SUPPLEMENTARY INFORMATION: On Monday, October 24, 1988, the Commission published in the Federal Register (53 FR 41607) a proposed rule, entitled "Flow Control Conditions for the Standby Liquid Control System in Boiling Water Reactors," that proposed amendments to 10 CFR 50.62. Interested parties were invited to submit written comments within a 60-day comment period, which ended on December 23, 1988. One comment was received, which agreed with the proposed clarification.

No change to the proposed rule was suggested in the public comment received by the NRC. The Commission believes that the proposed rule adequately clarifies reactivity control conditions for boiling water reactor standby liquid control systems (SLCS), thus, a final rule is being issued adopting the proposed rule without modification.

Environmental Impact: Categorical Exclusion

The NRC has determined that this rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(2). Thus, neither an environmental impact statement nor an environmental assessment has been prepared.

Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget under control number 3150-0011.

Regulatory Analysis

Because this rule is of a clarifying nature and does not substantially change existing regulatory requirements, the regulatory analysis prepared for the final rule entitled "Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants," published June 26, 1984 (49 FR 26036) is still valid for this rule. The analysis is available for inspection in the Public Document Room, 2120 L Street NW., Washington, DC, Lower Level. Single copies of the analysis may be obtained from William R. Pearson, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3764.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities and that therefore a regulatory flexibility analysis is not needed. This rulemaking action affects only licensees that own and operate nuclear utilization facilities licensed under sections 103 and 104 of the Atomic Energy Act of 1954, as amended. These licensees do not fall within the definition of small businesses set forth in section 3 of the Small Business Act (15 U.S.C. 632) or within the Small Business Size Standards set forth in the regulations issued for the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule, and therefore, that a backfit analysis is not required, because these amendments do not involve any provisions which impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR Part 50.

54 FR 15372
Published 4/18/89
Effective 5/18/89

Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors

See Part 52 Statements of Consideration

54 FR 50735
Published 12/11/89.

Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors; Correction

See Part 52 Statements of Consideration

55 FR 10397
Published 3/21/90.
Effective 4/20/90

Preserving the Free Flow of Information to the Commission

See Part 30 Statements of Consideration

55 FR 12163
Published 4/2/90.
Effective 4/2/90

10 CFR Part 50

RIN 3150-AD19

Stabilization and Decontamination Priority and Trusteeship Provisions

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the provisions of its property/accident recovery insurance regulations applicable to commercial power reactor licensees. The changes (1) clarify the scope and timing of the stabilization and decontamination processes after an accident at a covered reactor; (2) specify that the insurance is required to ensure that commercial power reactor licensees will have sufficient funds to carry out their obligation to clean up and decontaminate after an accident; and (3) eliminate the requirement that insurance proceeds after an accident are paid to an independent trustee. This rule responds to issues raised in three petitions for rulemaking.

EFFECTIVE DATE: April 2, 1990.

FOR FURTHER INFORMATION CONTACT: Robert S. Wood, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-1280.

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SUPPLEMENTARY INFORMATION:

I. Background

After the receipt of three petitions for rulemaking assigned Docket Nos. (PRM50-51) from Linda S. Stein, Steptoe & Johnson, counsel to American Nuclear Insurers and MAERP Reinsurance Association (ANI/MAERP); (PRM-50-51A) from J.B. Knotts, Jr., Bishop, Cook, Purcell & Reynolds, counsel to the Edison Electric Institute (EEI), the Nuclear Utility Management and Resources Council (NUMARC) and several power plant licensees; and (PRM-50-51B) from Peter D. Lederer, Baker & McKenzie, counsel to Nuclear Mutual Limited and Nuclear Electric Insurance Limited (NML and NEIL-II), the Commission published a notice of receipt requesting public comment on the petitions in the *Federal Register* of September 19, 1988 (53 FR 36335). The petitions were filed in response to a final rule on changes in property insurance requirements published by the Commission on August 5, 1987 (52 FR 28963). These petitions sought (1) clarification of the scope and timing of the stabilization process after an accident at a covered reactor; (2) clarification of the procedures by which the NRC determines and approves expenditures of funds necessary for decontamination and cleanup, and clarification of how such procedures affect both insurer's needs to secure appropriate proofs of loss and when payments may be made for non-cleanup purposes; (3) a change in the terminology of the required insurance from "property" insurance to "decontamination liability" insurance so as to better forestall claims on insurance proceeds by a licensee's bondholders; and (4) rescission of the provision that proceeds of the required insurance are to be paid to an independent trustee, who will disburse the proceeds for decontamination and cleanup of the facility before any other purpose.

Four comments were received on the petitions for rulemaking, all of which supported the amendments recommended in the petitions. The Commission responded to the comments received on the petitions in a proposed rule published on November 6, 1989 (54 FR 46624). This final rule, in effect, grants these petitions and completes NRC action in response to PRMs 50-51, 50-51A, and 50-51B.

II. Analysis of and Response to Comments

On November 6, 1989, the Commission published in the *Federal Register* (54 FR 46624) a proposed rule to amend 10 CFR

50.54(w). The rule was developed in response to the three petitions for rulemaking discussed above. As of January 18, 1990, the NRC received seven comments on the proposed rule. Six comments came from electric utilities or their representatives. One comment came from the Association of the Bar of the City of New York. All commenters essentially supported the Commission's rulemaking, although some took issue with specific provisions. Two aspects of the proposed rule, in particular, were opposed by several commenters. The first is the statement in the preamble of the proposed rule that the NRC retains the authority to require an independent trustee to hold and to disburse insurance proceeds in individual cases, if warranted. Further, the NRC expressed its intention that if the NRC obtains authority to receive and retain insurance proceeds itself, it will consider whether to exercise this authority and the best method of implementing the authority (54 FR 46624, at p. 46627).

In support of their objections, the commenters refer to the case cited in the proposed rule—*In re Smith-Douglass* (Nos. 87-1683, -1684 (4th Circuit, September 6, 1988))—and take issue with the Commission's conclusion that the decision in this case justifies future reimposition of a trusteeship requirement. The Commission continues to believe that uncertainties remain with respect to interpretation of this and similar decisions. Consequently, if the Commission concludes that future conditions warrant reinstitution of the trusteeship requirement, it will reopen this issue for reconsideration. If the Commission does make such a decision, however, it will provide ample opportunity for public comment at that time. Because no provision of this final rule is affected by these concerns, the Commission proposes no further discussion or action at this time.

The second issue raised by several commenters concerns how the Commission might address possible increases in accident cleanup costs resulting from inflation or other factors. Commenters expressed the opinion that there is insufficient experience from which to develop an effective formula to estimate future accident cleanup costs. Furthermore, such a formula would not be able to account for advances in technology that might reduce future costs. Commenters suggest that rather than use a formula to estimate future cleanup costs and consequently establish future insurance requirements, the NRC reevaluate accident cleanup costs every 3 to 5 years by conducting

specific studies using then-current technology. One commenter recommended using a simple formula based on the Consumer Price Index to estimate future cleanup costs.

Since publication of the proposed rule, the NRC's contractor has updated NUREG/CR-2601¹ (hereinafter cited as Addendum 1) which provided the basis for the \$1.06 billion in insurance currently required. The report found that in 1989 dollars, approximately \$1.03 billion would be needed for cleanup after a severe accident at a reference boiling water reactor. In addition, depending on whether a 4 percent or an 8 percent inflation rate is assumed, an additional \$186.5 million to \$409.9 million would be needed to cover incremental cost escalation during the cleanup process. In evaluating these costs, the contractor considered labor, energy, waste disposal, and nuclear insurance as those cost components with the greatest potential effect on cost escalation.

Except for nuclear insurance, these factors are the same as those used in the Commission's decommissioning rule, although the relative weights of the factors vary (53 FR 24018, June 27, 1988) (See 10 CFR 50.75(c)(2)). The Commission notes, however, that commenters had ample opportunity to evaluate and comment upon the technical studies that the NRC used as the basis for its decommissioning requirements. No such opportunity has been available heretofore for Addendum 1. Consequently, the Commission concludes that the public interest would best be served if the issue of whether and to what extent the amount of accident cleanup insurance should increase is deferred pending public comment on Addendum 1. As part of its conclusion, the Commission further notes that most licensees already carry accident cleanup insurance in amounts that exceed the maximum amount predicted by the formula in Addendum 1. Thus, there is no compelling health or safety reason to increase the required amount of insurance in advance of public comment. Concurrently, the Commission believes that the public comments on Addendum 1 will enable the Commission to make more informed decisions in connection with any future

¹ "Technology, Safety and Costs of Decommissioning Reference Light Water Reactors Following Postulated Accidents—Addendum 1," Pacific Northwest Laboratory, to be published. This report will be available by approximately May 1990 for purchase from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. A notice of availability will be published.

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rulemaking proceeding to increase the amount of required insurance.

Individual commenters also have raised specific concerns with the proposed rule. These concerns include the stabilization priority threshold, the 60-day priority period, and the cleanup plan. One commenter indicates that, pursuant to proposed 10 CFR 50.54(w)(4)(i), insurance proceeds would only be required to be dedicated to stabilization and decontamination if the estimated costs exceeded \$100 million. Further, this priority would initially apply to stabilization costs for 60 days and could be extended in 60-day increments. Within 30 days after the reactor is stabilized, the licensee is required to submit a cleanup plan which must be approved by the Director of the Office of Nuclear Reactor Regulation. This commenter also suggests that the rule should clarify (a) whether the NRC or the licensee provides the cost estimate, and (b) how the Director of the Office of Nuclear Reactor Regulation determines the length of the stabilization priority and the criteria for approving the cleanup plan.

The NRC believes that these and similar issues have been discussed in previous rulemaking and that additional specificity may be cumbersome and counterproductive. The Commission clearly intends to rely on licensees to prepare initial cost estimates of accidents, although it is conceivable that the Commission could prepare its own confirmatory estimates if unusual circumstances warranted. Furthermore, a cut-off figure of \$100 million represents a relatively minor accident where the availability of funds would not, as a practical matter, be at issue. Thus, it is very unlikely that the Commission would dispute estimates unless they significantly exceeded \$100 million. Further, § 50.54(w)(4)(i) explicitly defines what constitutes stabilization. Therefore, it is unlikely that serious disagreements would arise concerning when a reactor is stabilized.

However, if disputes over stabilization should arise, the Commission's Rules of Practice under 10 CFR part 2 provide adequate procedures to resolve them. Similarly, part 2 procedures are also available to resolve disputes that may arise over the content of cleanup plans. The Commission notes that the proposed rule was drafted in response to the suggestions of petitioners representing most power reactor licensees and their insurers. The petitioners did not raise these specific issues in their petitions or in comments on the proposed rule. Consequently, the Commission concludes that the

suggested changes to the proposed rule are not needed.

One commenter takes issue with the following statement in the Regulatory Analysis published in connection with the proposed rule: "Although the effect of these formulas, if developed and adopted, would be to increase the required amount of insurance for some licensees, there should be little impact on insurance costs to licensees because almost all licensees buy the maximum amount of insurance available" (54 FR 46624, at p. 46628, November 6, 1989). This commenter states that, "This may have been true in the past, however we do not agree with this assessment. In fact, we did not automatically purchase the maximum amount of insurance available this year following an increase in available coverage."

Notwithstanding this commenter's decision not to buy additional insurance, the Commission notes that the maximum amount of insurance currently offered exceeds by a significant margin the amount that would be required if the maximum figure suggested in Addendum 1 were adopted. Most licensees currently purchase substantially more than this maximum. Thus, the Commission stands by the statement in question.

These amendments provide relief from restrictions under regulations due to take effect on April 4, 1990. Therefore, pursuant to 5 U.S.C. § 553(d)(1), the Commission is making the rule effective on the date of publication in the **Federal Register** without the customary 30-day waiting period.

III. Finding of No Significant Environmental Impact; Availability

Noting that the text of the final rule is identical to that of the proposed rule, the Commission has reviewed the environmental assessment and finding of no significant environmental impact published in the **Federal Register** on November 6, 1989 (54 FR 46624, at 46627) in connection with the proposed rule. On the basis of that review, and after considering the public comments and determining that such comments do not affect the conclusion reached in the earlier finding of no significant impact, the Commission has concluded that this amendment to 10 CFR 50.54(w) is not a major Federal action significantly affecting the quality of the human environment, and therefore, an environmental impact statement is not required.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection and copying at the NRC Public Document Room, 2120 L

Street, NW. (Lower Level), Washington, DC.

IV. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The final rule has been referred to the Office of Management and Budget for review and approval.

Public reporting burden for this collection of information is estimated to average 2,000 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Paperwork Reduction Project (3150-0011), Office of Management and Budget, Washington, DC 20503.

V. Regulatory Analysis

On November 6, 1989, the Commission published in the **Federal Register** (54 FR 46624) a proposed rule to amend 10 CFR 50.54(w). The rule was developed in response to three petitions for rulemaking. Notice of receipt of these petitions was published in the **Federal Register** on September 19, 1988 (53 FR 36335). These petitions sought clarification of the stabilization and decontamination priority provisions and rescission of the trusteeship provisions currently contained in 10 CFR 50.54(w). The petitions further stated that the trusteeship provisions may actually have an effect counter to their intended purpose by delaying the payment of claims and thus possibly the cleanup process. The rule developed in response to the petitions for rulemaking should help clarify the mechanism by which accident cleanup funds may be guaranteed to be used for their intended purpose. Even without formal stabilization and decontamination priority and trusteeship provisions, the NRC has authority to take appropriate enforcement action to order cleanup in the unlikely event of an accident. By rescinding the trusteeship requirement, the Commission would be eliminating licensees' costs to obtain trustee services. Thus, the rule will not create substantial costs for licensees.

The rule will not have significant impacts on State and local governments

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and geographical regions, on the environment, or create substantial costs to the NRC or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this rule.

VI. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this final rule does not have a significant economic impact upon a substantial number of small entities. The rule only affects licensees of nuclear power plants. None of the holders of these licenses fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121.

VII. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule because this rule will not impose a backfit as defined in § 50.109(a)(1). Therefore, a backfit analysis is not required for this rule.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 50.

55 FR 29181

Published 7/18/90

Effective 8/17/90

*Storage of Spent Fuel in NRC-
Approved Storage Casks at Power
Reactor Sites*

See Part 72 Statements of Consideration

56 FR 944

Published 1/10/91

Effective 1/10/91

*Operations Center Area Code
Telephone Number Change*

See Part 20 Statements of Consideration

56 FR 22300

Published 5/15/91

Effective 6/14/91

10 CFR Part 50

RIN 3150-AD01

**Fracture Toughness Requirements for
Protection Against Pressurized
Thermal Shock Events**

AGENCY: Nuclear Regulatory
Commission

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for light-water nuclear power plants to change the procedure for calculating the amount of radiation embrittlement that a reactor vessel receives. The pressurized thermal shock rule (PTS rule) establishes a screening criterion. This criterion limits the amount of embrittlement of a reactor vessel beltline material beyond which the plant cannot continue to operate without justification based on a plant-specific analysis. The final amendment does not change the screening criterion. The PTS rule also prescribes the procedure that must be used for calculating the amount of embrittlement for comparison to the screening criterion. The final amendment updates the procedure and makes it consistent with the one given in Regulatory Guide 1.99, Revision 2, published in May 1988.

EFFECTIVE DATE: June 14, 1991.

FOR FURTHER INFORMATION CONTACT:

Allen L. Hiser, Jr., Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3988.

SUPPLEMENTARY INFORMATION:

Background

Pressurized thermal shock events are system transients in a pressurized water reactor (PWR) that can cause severe overcooling followed by immediate

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repressurization to a high level. The thermal stresses caused by rapid cooling of the reactor vessel inside surface combine with the pressure stresses to increase the potential for fracture if an initiating flaw is present in low toughness material. This material may exist in the reactor vessel beltline, adjacent to the core, where neutron radiation gradually embrittles the material during plant lifetime. The degree of embrittlement depends on the chemical composition of the steel, especially the copper and nickel contents.

The toughness of reactor vessel materials is characterized by a "reference temperature for nil ductility transition" (RT_{NDT}), which is determined by destructive tests of material specimens. For many reactors now in operation, toughness of the beltline materials at room temperature is low. As temperature is raised, toughness increases slowly at first; but at the temperature defined as RT_{NDT} , toughness begins to increase much more rapidly. The transition in toughness from low values to high that takes place above RT_{NDT} means that vessel materials are quite tough at normal operating temperatures. Radiation embrittlement moves RT_{NDT} to higher temperatures. Correlations based on test results for unirradiated and irradiated specimens have been developed to calculate the shift in RT_{NDT} as a function of neutron fluence for various material compositions. The value of RT_{NDT} at a given time in a vessel's life is used in fracture mechanics calculations to determine whether assumed pre-existing flaws would propagate as cracks when the vessel is stressed.

The Pressurized Thermal Shock (PTS) rule, 10 CFR 50.61, adopted on July 23, 1985 (50 CFR 29937), establishes a screening criterion. This screening criterion establishes a limiting level of embrittlement beyond which operation cannot continue without further plant-specific evaluation. The screening criterion is given in terms of RT_{NDT} , calculated as a function of the copper and nickel contents of the material and the neutron fluence according to the procedure given in the PTS rule, and called RT_{PTS} to distinguish it from other procedures for calculating RT_{NDT} .

The PTS rule requires each PWR licensee to report the results of the calculations of predicted RT_{PTS} values for each beltline material (including the copper, nickel and fluence values that provided the basis for the calculations) from the time he submits his report to the expiration date of the operating license (EOL). The PTS rule further

provides that if RT_{PTS} for the controlling material is predicted to exceed the screening criterion before EOL, the licensee should submit plans and a schedule for flux reduction programs that are reasonably practicable to avoid reaching the screening criterion. Finally, the PTS rule requires licensees of plants that would reach the screening criterion before EOL despite the flux reduction program to submit a plant-specific safety analysis justifying operation beyond the screening criterion. The licensee must submit the analysis at least 3 years before the plant is predicted to reach that limit. Regulatory Guide 1.154, "Format and Content of Plant-Specific Pressurized Thermal Shock Safety Analysis Reports for Pressurized Water Reactors" provides guidance for the preparation of the report and describes acceptance criteria that the NRC staff would use.

In response to the PTS rule, the licensees of operating reactors have submitted the fluence predictions and material composition data and these have now been accepted. Of greater importance are the flux reduction programs that have been undertaken by licensees for those plants having high values of RT_{PTS} .

On December 26, 1989 (54 FR 52946), the Commission published the proposed rule to change the procedure for calculating RT_{PTS} to reflect recent findings that embrittlement is occurring faster than predicted by the PTS rule for some reactor vessel materials. Although the PTS rule was adopted on July 23, 1985, the procedure for calculating RT_{PTS} was developed in 1981-1982 and not updated because a number of licensees were using the 1982 formulations as the basis for flux reduction programs. Meanwhile, plant surveillance data were being added to the data base and there were extensive new and more accurate correlations made. These culminated in Revision 2 to Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials," published in May 1988. Revision 2 provides the basis for pressure-temperature limit calculations. Peer review of the new correlations was provided by the public comments on Revision 2.

In the regulatory analysis prepared for Revision 2, and repeated in the regulatory analysis for this amendment, the NRC evaluated the impact of amending the PTS rule to be consistent with the Guide. Copper and nickel contents and fluence values for each PWR reactor vessel were taken from the PTS submittals from licensees. When the values of RT_{PTS} were recalculated using these quantities and the procedure

developed for Revision 2, the results were higher for approximately half the vessels, including three vessels where the value may be over 60°F higher than previously thought. This would increase the probability of PTS-induced vessel failure by a factor of at least 30 for those plants.

The NRC believes these changes in the nonconservative direction are greater than can be absorbed by the uncertainties believed to exist and taken into account by the NRC when the RT_{PTS} -based screening limit was set. (A margin of 48°F is added in the calculation of RT_{PTS} to cover not only the uncertainty in the formula for embrittlement but also the uncertainties in the copper, nickel, and fluence values entered in the formula.) Based on this new information, the probability of reactor vessel failure by fracture during a PTS event is presently higher in some vessels than the probability based on the procedure for calculating RT_{PTS} which is given in the present PTS rule. Moreover, a few of those reactor vessels will reach the screening criterion in the 1990's. Thus, the current PTS rule needs to be amended.

A 75 day comment period expired on March 12, 1990. Comments were received from 15 respondents.

Summary of Public Comments

The proposed amendments have been modified in response to the comments received and will be published in final form, as modified, to become effective 30 days after publication of this final rule. Changes were made in response to the public comments to introduce flexibility and technical improvement in the calculation of RT_{PTS} by requiring consideration of the plant-specific surveillance data and operating conditions when they would have a significant effect on the date the screening criterion would be reached. Another change was made to loosen the reporting schedule for licensees whose reactor vessels will not become highly embrittled. A summary of the public comments and staff responses follows:

1. Validity of a Limited Revision

Several comments questioned broad issues in the PTS rule and urged that a limited revision not be undertaken. Some comments said that the screening criterion should be raised (made less conservative) because they believed that the calculated probability of fracture would be reduced if the new embrittlement formula was substituted for the old in those calculations. Other comments pointed out changes in the assumptions about flaw size and

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location, as well as updated information about the expected severity and frequency of PTS transients as reasons to revisit the screening criterion. Still other comments questioned the use of a single parameter, RT_{PTS} , in the screening criterion and asked for consideration of a multiparameter criterion.

Staff Response

A general response to the comments is as follows. First, the scope of the proposed amendment is narrow: to make technical corrections in the embrittlement formula for calculation of RT_{PTS} values to compare to the screening criterion. A general revision of the PTS rule must wait until further research is done. Second, the screening criterion is not a safety limit. It is a tripwire which triggers a plant-specific safety analysis, i.e., it defines which licensees need to do that analysis and when it should be done. Third, the screening criterion is not linked directly to a predicted frequency of through-wall cracking. Only when the plant-specific analysis is done (using plant-specific systems and fracture parameters) is the criterion for continued operation based on a through-wall crack frequency of 5×10^{-6} per reactor year. It is Regulatory Guide 1.154, "Format and Content of Plant-Specific Pressurized Thermal Shock Safety Analysis Reports for Pressurized Water Reactors" (not 10 CFR 50.61) which states that this frequency is the staff's primary acceptance criterion for continued operation.

In specific response to the issue of conservatism, the Regulatory Analysis for the proposed rule summarized the results of some studies of the effects on through-wall crack frequency when calculated using the proposed embrittlement formula instead of the one used in the original PTS rule and Monte Carlo analyses done earlier. These studies showed that the PTS rule is more conservative than previously thought for some accident scenarios, but not for all. The results did not justify raising the screening criterion.

2. Alternative Use of Plant-Specific Surveillance Data

Eleven out of fifteen comments urged the addition of this alternative to the proposed RT_{PTS} calculation method based on copper and nickel contents and fluence, noting that this alternative is allowed in calculating pressure-temperature limits using R.G. 1.99.¹ The

strongest need for this alternative is for plants nearing the screening criterion. In the plant-specific PRA (probabilistic risk analysis) required as the basis for allowing a plant to operate beyond the screening criterion, any embrittlement information may be used if justification is given. Noting this, commenters said that the use of plant-specific surveillance data would in some cases make the PRA results favorable; therefore, it should be permissible to use such data in calculating RT_{PTS} , thereby avoiding the time and expense of the PRA analysis.

Staff Response

The proposed amendment to the PTS rule is prescriptive on the issue of calculating RT_{PTS} , because not many plants meet the criteria for "credible" surveillance data given in R.G. 1.99 in all respects and because the criteria are somewhat subjective. Lengthy disputes over credibility are anticipated, based on experience in applying R.G. 1.99 elsewhere. Moreover, in many cases there is a difficult choice to be made between reliance on a very small amount of plant-specific surveillance data, or a calculated value based on a large data base of specimens most of which were irradiated in other reactors.

Nevertheless, in response to the widespread comments, it is agreed that there is need for some flexibility in the PTS rule to permit consideration of all available information. A new paragraph (b)(3) has been added and the existing paragraphs (b)(3) through (b)(6) have been renumbered. The intent of the new paragraph (b)(3) is to provide flexibility for use in two kinds of special situations. Commenters dwelt on the situation where surveillance data showed the vessel to be significantly less embrittled than indicated by the proposed embrittlement formula. In the other situation, there is information from surveillance data or other information, such as the operating temperature of the reactor vessel that shows the vessel may be significantly more embrittled than calculated by the proposed rule.² Thus, some flexibility has been added to the rule to ensure that significant information is not ignored.

Several of the commenters on this issue recommended that Position C 2, "Surveillance Data Available," as well as the criteria for credibility of the surveillance data, given in R.G. 1.99, be incorporated in the PTS rule in total.

² The irradiation temperatures represented in the data base that was correlated to obtain the formula in the PTS rule ranged from 325 to 590 degrees Fahrenheit. Operation below that temperature range is considered to cause more embrittlement.

The staff has rejected this suggestion in an effort to keep the implementation of the PTS rule as simple as possible. It is anticipated that only those licensees whose vessels are approaching the screening criterion would make use of paragraph (b)(3). Its use requires review and approval by the staff, at which time the guidelines in R.G. 1.99 may be appropriate, but not necessarily so.

3. Use of Measured Values of RT_{NDT}

Several comments said that the changes in wording of the requirement in paragraph (b)(2)(i) that "measured values must be used if available . . ." represented a change in the rule which reduced its flexibility.

Staff Response

There is no change in intent. The words were changed in the proposed rule to remove any ambiguity. A further clarification was made in the final rule by adding the words "if credible values are available." The intent is to allow a licensee to offer justification for not using a particular measured value if he does not have confidence in it.

4. Only a Few Plants are Affected Significantly, but the Proposed Rule Adds a Regulatory Burden on All and a Public Relations Burden Also

The proposed PTS rule "reorders" the list of reactor vessels in terms of their sensitivity to PTS events, and should be revised to reduce these impacts by increasing flexibility in the requirements or by a multiparameter approach.

Staff Response

To limit the effort required by the industry, the PTS rule prescribes a screening criterion to separate out those plants that should do the PRA analysis, based on the level of embrittlement of the reactor vessels, i.e., the rule describes who should do the analysis, and when they should do it. Yet, the foregoing comments request that either some kind of intermediate screening procedure be established that considers several parameters instead of only RT_{PTS} , or that the objective should be accomplished by introducing flexibility into the rule.

The staff has rejected the suggestion of a "mini-PRA" as an intermediate procedure, because that opens the door to very misleading conclusions. When the PTS rule was in the early formative stages, there were proposals for a deterministic criterion. However, it soon became clear that there was no way to choose the design transient from among the array of transients of increasing severity but lower frequency. Extending

¹ Radiation Embrittlement of Reactor Vessel Materials, Regulatory Guide 1.99, Revision 2, May, 1988.

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this reasoning to PRAs, the staff concludes that a partial PRA is inappropriate. These comments have been rejected, but paragraph (b)(1) has been modified to reduce the reporting burden for all plants except those expected to reach the screening criterion before the end of their operating life. These modifications are in addition to the amendments to paragraph (b)(1) that were published in the proposed rule to simplify the reporting requirements.

5. Use of "Adequate Protection" Exception to the Backfit Rule

One comment said that flexibility in granting exemptions to the rule or exceptions to the required submittal schedules would be reduced if exception was taken to the backfit rule (10 CFR 50.109) on the basis that the amendments to the PTS rule were needed to provide adequate protection to the health and safety of the public.

Staff Response

The staff has continued to cite "adequate protection," because it believes that the amendment to the PTS rule is necessary to assure that there is no undue risk to public health and safety from pressurized thermal shock. Characterizing the amendment as "necessary to assure adequate protection" does not preclude the NRC from granting exemptions to the rule, so long as licensees propose alternatives which assure adequate protection. The staff also notes that the PTS rule, paragraphs (b)(5), (b)(6) and (b)(7), provides procedures for the kind of case-by-case review that would normally be the basis for an exemption. There is even what amounts to an appeal procedure in paragraph (b)(7) whereby a licensee whose plant-specific analysis and proposed corrective actions are not approved can again request consideration of additional modifications to equipment, systems and operation of the facility in addition to those previously proposed.

Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required.

The PTS rule is one of several regulatory requirements the function of which is to ensure reactor vessel integrity. This amendment to the PTS

rule updates the procedure for calculating the level of embrittlement of the reactor vessel bellline as a result of neutron radiation. Use of the updated procedure will not result in any adverse changes in power level, effluents, or other operational characteristics of a nuclear power reactor. Therefore, this rule is not expected to have any significant effect on the environment. Moreover, since the use of the updated procedure is likely to result in more accurate and conservative predictions of transition to nil ductility, the risk of an accident and attendant environmental consequences is likely to be reduced under the new amended rule.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Allen L. Hiser, Jr., Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3988.

Paperwork Reduction Act Statement

This rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These information collection requirements were approved by the Office of Management and Budget Approval No. 3150-0011.

Public reporting burden for this collection of information is estimated to average approximately 331 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019 (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The NRC staff prepared a regulatory analysis for the final rule, which describes the factors and alternatives

considered by the Commission in deciding to propose this rule.

A copy of the regulatory analysis is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20555. Single copies of the analysis may be obtained from Allen L. Hiser, Jr., Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-3988.

Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule specifies minimum fracture toughness properties of irradiated pressure vessel materials to ameliorate the effects of PTS events on nuclear facilities licensed under the provision of 10 CFR 50.21(b) and 10 CFR 50.22. The companies that own these facilities do not fall within the scope of the definition of "small entities" as set forth in the Regulatory Flexibility Act or the Small Business Size Standards in regulations issued by the Small Business Administration at 10 CFR part 121.

Backfit Analysis

The NRC has concluded, on the basis of the documented evaluation required by 10 CFR 50.109(a)(4), that the backfit requirements contained in this amendment are necessary to ensure that the facility provides adequate protection to the public health and safety, and, therefore, that a backfit analysis is not required and the cost-benefit standards of 10 CFR 50.109(a)(3) do not apply. The documented evaluation given in the regulatory analysis includes a statement of the objectives of and reasons for the backfits that would be required by the rule and sets forth the basis for the NRC's conclusion that these backfits are not subject to the cost-benefit standards of 10 CFR 50.109(a)(3).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR part 50.

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56 FR 23360
Published 5/21/91.
Effective 6/20/91

Standards for Protection Against Radiation

See Part 20 Statements of Consideration

56 FR 31306
Published 7/10/91
Effective 7/10/96

10 CFR Part 50

RIN 3150-AD00

Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Commission is amending its regulations to require commercial nuclear power plant licensees to monitor the effectiveness of maintenance activities for safety significant plant equipment in order to minimize the likelihood of failures and events caused by the lack of effective maintenance. The Commission believes that, to maintain safety, it is necessary to monitor the effectiveness of maintenance, and take timely and appropriate corrective action, where necessary, to ensure the continuing effectiveness of maintenance for the lifetime of nuclear power plants, particularly as plants age. The final rule requires that licensees monitor the performance or condition of certain structures, systems and components (SSCs) against licensee-established goals in a manner sufficient to provide reasonable assurance that those SSCs will be capable of performing their intended functions. Such monitoring would take into account industry-wide operating experience. Where monitoring proves unnecessary, licensees would be permitted the option of relying upon an appropriate preventive maintenance program. Licensees will be required to evaluate the overall effectiveness of their maintenance programs on at least an annual basis, again taking into account industry-wide operating experience, and adjust their programs where necessary to ensure that the prevention of failures is appropriately balanced with the minimization of unavailability of SSCs. Finally, in performing monitoring and maintenance activities which require taking equipment out of service, licensees

should assess the total plant equipment that is out of service and determine the overall effect on the performance of safety functions.

EFFECTIVE DATE: The final rule will become effective July 10, 1996. However, the information collection requirements contained in 10 CFR 50.65 are not effective until the NRC publishes the Office of Management and Budget (OMB) clearance in the Federal Register.

FOR FURTHER INFORMATION CONTACT:

Robert Riggs, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3732.

SUPPLEMENTARY INFORMATION:

Background

On March 23, 1988 (53 FR 9430), the Commission published a final Policy Statement on Maintenance of Nuclear Power Plants. In the Policy Statement, the Commission stated that it expected to publish a notice of proposed rulemaking and provided the general framework for the proposed rule. On November 28, 1988 (53 FR 47822), the Commission published a notice of proposed rulemaking to require commercial nuclear power plant licensees to implement a maintenance program to reduce the likelihood of failures and events caused by the lack of effective maintenance. In support of this rule, the Commission published a draft regulatory guide on maintenance on August 17, 1989 (54 FR 33988) for public comment. On December 8, 1989, the Commission issued a revised policy statement on maintenance (54 FR 50611) that stated the Commission's intention to hold rulemaking in abeyance for 18 months while it monitored industry initiatives and improvements and to assess the need for rulemaking in the maintenance area at the end of the 18 month period.

On April 13, 1990, in response to a Commission request, the staff forwarded the following four proposed criteria to be used in determining the need for maintenance rulemaking:

Criterion 1—Licensees have effectively implemented an adequate maintenance program or are committed to and proceeding towards this goal.

Criterion 2—Licensees exhibit a favorable trend in performance related to maintenance.

Criterion 3—Licensees are committed to the implementation of a maintenance performance standard acceptable to the NRC.

Criterion 4—Licensees have in place or are committed to an evaluation

program for ensuring sustained performance in the maintenance area.

On May 25, 1990, the Commission approved these criteria and advised the staff that additional factors which may influence the Commission in determining the need for maintenance rulemaking were: (1) The ability to enforce maintenance programs or standards; (2) the presence of a strengthened commitment by the industry to monitor equipment performance to identify problematic components, systems, and functions, to conduct root cause analysis, to track corrective actions, and to feedback information into the maintenance program; and (3) provision of a mechanism by which the NRC could verify the effectiveness of the program.

On May 23, 1990, the Commission directed the staff to develop a second proposed rule that would be reliability-based. In addition, the Commission directed the staff to develop two procedural approaches for implementation of a rule. The first implementation approach, which allowed licensees to use an alternate NRC approved maintenance standard, was incorporated into both rules. The second approach was to include conceptual considerations for application of a maintenance rule only to licensees exhibiting poor performance in the maintenance area.

In SECY-91-110 dated April 26, 1991, the staff reported the results of the staff's evaluation of the need for maintenance rulemaking. The evaluation was based upon an assessment of licensee progress against the four Commission-approved criteria and the additional factors identified by the Commission. The staff also presented for Commission consideration options and recommendations pertaining to: (1) The issuance of a final policy statement; (2) the issuance of a final "process-oriented" rule and accompanying regulatory guide, based upon the November 1988 proposed rule, the August 1989 draft regulatory guide, and public comments received on both the proposed rule and draft regulatory guide; (3) the issuance of a proposed "reliability-based" rule and accompanying draft regulatory guide; (4) the application of a maintenance rule only to poor performers.

Need for a Rule

The Commission's determination that a maintenance rule is needed rests first on the conclusion that proper maintenance is essential to plant safety. As discussed in the Regulatory Analysis and the Backfit Analysis for this rule,

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there is a clear link between effective maintenance and safety as it relates to such factors as number of transients and challenges to safety systems and the associated need for operability, availability and reliability of safety equipment. In addition, good maintenance is also important in providing assurance that failures of other than safety-related SSCs that could initiate or adversely affect a transient or accident are minimized. Minimizing challenges to safety systems is consistent with the Commission's defense-in-depth philosophy. Maintenance is also important to ensure that design assumptions and margins in the original design basis are either maintained or are not unacceptably degraded. Therefore, nuclear power plant maintenance is clearly important in protecting the public health and safety.

The results of the Commission's Maintenance Team Inspections (MTIs) indicated that licensees have adequate maintenance programs and have exhibited an improving trend in program implementation (Criterion 1). However, some common maintenance-related weaknesses were identified, such as inadequate root cause analysis leading to repetitive failures, lack of equipment performance trending, and the consideration of plant risk in the prioritization, planning and scheduling of maintenance. In general, as evidenced by plant operational performance data and the results of NRC assessments, the industry has exhibited a favorable trend in maintenance performance (Criterion 2).

With regard to licensee commitment to an NRC-approved maintenance performance standard (Criterion 3), the industry, through NUMARC, expressed to the Commission its commitment, in general, to the goal of improving performance in the area of maintenance. The industry asserted that all licensees are committed, by virtue of their membership in the industry-sponsored Institute for Nuclear Power Operations (INPO), to meeting, or striving to meet, the performance objectives contained in INPO 90-008, "Maintenance Programs in the Nuclear Power Industry." INPO 90-008 is primarily a compilation of preexisting objectives and criteria developed by INPO relating to maintenance. These objectives and criteria largely relate to maintenance program content and programmatic measures of performance. No written commitments were received from licensees and the industry-wide commitment which was received was at best indirect. The Commission believes

that a sufficient commitment by licensees to a maintenance standard approved by the NRC has not been received.

With regard to licensees having in place or being committed to an evaluation program for ensuring sustained performance in the area of maintenance (Criterion 4), the industry, through NUMARC, indicated that all licensees will perform a comprehensive assessment of their maintenance programs against the performance objectives of INPO 90-008. These one-time assessments were to be conducted over a four year period. Additionally, periodic INPO evaluations which include the maintenance area will continue to be performed. However, the Commission believes that the industry's largely programmatic assessments and evaluations of licensee maintenance programs will not alone suffice. Instead, the Commission believes that the effectiveness of maintenance must be assessed on an ongoing basis in a manner which ensures that the desired result, reasonable assurance that key structures, systems, and components are capable of performing their intended function, is consistently achieved. Further, there is a continuing need for feedback of the results of such assessments and to factor those results into programmatic requirements, where assessment results indicate ineffective maintenance.

Considering the above points, the Commission is satisfied that the industry has been generally successful in bringing about substantial improvement in maintenance programs. Further, the improving trend established over the past several years has continued. However, the necessity for ongoing results-oriented assessments of maintenance effectiveness is indicated by the fact that, despite significant industry accomplishment in the areas of maintenance program content and implementation, plant events caused by the degradation or failure of plant equipment continue to occur as a result of instances of ineffective maintenance. Additionally, operational events have been exacerbated by or resulted from plant equipment being unavailable due to maintenance activities. Under existing requirements and industry maintenance initiatives, with relatively few exceptions, the availabilities of safety significant structures, systems, and components are not routinely assessed. These events and circumstances further attest to the need for ongoing results-oriented assessment of maintenance effectiveness since, together with equipment reliability,

equipment availability is an important measure of maintenance effectiveness.

Regarding the additional factors considered by the Commission in determining the need for a maintenance rule, the Commission believes that there exists a need to broaden its capability to take timely enforcement action where maintenance activities fail to provide reasonable assurance that safety significant SSCs are capable of performing their intended function. With regard to the presence of a strengthened industry commitment to: Monitor equipment performance to identify problematic components, systems and functions; to conduct root cause analysis; to track corrective actions; and to feedback information into maintenance programs, the Commission has determined, based upon the weaknesses identified by the MTIs and the lack of sufficient commitments by licensees to a maintenance standard, that additional regulatory attention to these matters is warranted. Concerning the provision of a mechanism by which the NRC could verify the effectiveness of maintenance programs, neither the Commission nor the industry have been able to develop overall performance indicators which would readily provide unambiguous indication of overall maintenance effectiveness at any given plant. Thus, the Commission's consideration of these additional factors also weighs in favor of promulgating a rule that requires the monitoring and assessment of maintenance effectiveness. Additionally, consideration of these factors leads the Commission to conclude that it is necessary for such a rule to include requirements for corrective action to address instances of ineffective maintenance, and feedback of the results of monitoring and assessment into licensee maintenance programs.

In consideration of the above, the Commission has determined that a regulatory framework must be put in place which provides a mechanism for evaluating the overall continuing effectiveness of licensee maintenance programs, particularly as the plants continue to age. As noted previously, areas directly related to this issue were identified as common weaknesses during the NRC's Maintenance Team Inspections. These areas included inadequate root cause analysis, lack of equipment performance trending, and lack of consideration of risk in the prioritization, planning, and scheduling of maintenance. The Commission therefore concludes that a rule requiring that licensees monitor and assess the

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effectiveness of maintenance activities is necessary.

In addition to all of the above considerations, the Commission's conclusion that a rule requiring that the effectiveness of maintenance be monitored is also predicated on the fact that the Commission's current regulations, regulatory guidance, and licensing practice do not clearly define the Commission's expectations with regard to ensuring the continued effectiveness of maintenance programs at nuclear power plants. The Commission has many individualized requirements relative to maintenance, including SSCs in the balance of plant (BOP), throughout the regulations. These include 10 CFR 50.34(a)(3)(i); 50.34(a)(7); 50.34(b)(6) (i), (ii), (iii), and (iv); 50.34(b)(9); 50.34(f)(1) (i), (ii), and (iii); 50.34(g); 50.34a(c); 50.36(a); 50.36(c) (2), (3), (5), and (7); 50.36a(a)(1); 50.49(b); 50.55a(g); part 50, appendix A, criteria 1, 13, 18, 21, 32, 36, 37, 40, 43, 45, 46, 52, 53; part 50, appendix B. More generally, 10 CFR 50.34(b)(6)(iv) requires licensees to address their plans for the conduct of "maintenance, surveillance, and periodic testing of structures, systems, and components." However, there is no guidance on exactly what these "plans for the conduct of maintenance" should include with regard to the monitoring of maintenance effectiveness.

The Commission's rules, guidance, and practice also require clarification as to what structures, systems, and components should be subject to maintenance requirements. Although § 50.34(b)(6)(iv) references maintenance for "structures, systems, and components" without further qualification, the guidance in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants—LWR Edition," (Revision 3, November 1978) is silent on the scope of SSCs that the maintenance program should cover (see Regulatory Guide 1.70, section 13.5.2). Regulatory Guide 1.70 also refers to Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)." Regulatory Guide 1.33, which implements portions of 10 CFR part 50, appendix B, indicates in appendix A that "maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures * * *." The sample listing of maintenance operations requiring procedures also is limited to safety-related equipment. Regulatory Guide 1.70 also endorses industry standards for nuclear power plant operations that are limited to maintenance or

modifications "which may affect the functioning of safety-related structures, systems, or components * * *." The Commission has previously interpreted its rules and guidance as requiring licensees to address the safety aspects of certain SSCs in the BOP. For example, 10 CFR 50.34(g) requires applicants for licenses after 1982 to evaluate their facility against the Standard Review Plan (SRP), NUREG-0800. The SRP requires licensees to evaluate a number of SSCs in the BOP (this is further discussed in the Commission's response to Question 7 in the summary of public comments).

Requirements and guidance for monitoring maintenance effectiveness and for taking corrective action when maintenance is ineffective should enhance the Commission's capability to take timely and effective action against licensees with inadequate or poorly conducted maintenance in order to ensure prompt resumption of effective maintenance activities.

For these reasons, the Commission concludes that a regulation that requires all nuclear power plant licensees to monitor the effectiveness of maintenance activities is warranted. The rule provides for continued emphasis on the defense-in-depth principle by including selected BOP SSCs, integrates risk consideration into the maintenance process, provides an enhanced regulatory basis for inspection and enforcement of BOP maintenance-related issues, and provides a strengthened regulatory basis for ensuring that the progress achieved to date is sustained in the future.

Description of Rule

The objective of the final rule is to require the monitoring of the overall continuing effectiveness of licensee maintenance programs to ensure that: (1) Safety related and certain non-safety related structures, systems, and components are capable of performing their intended functions; and (2) for non-safety related equipment, failures will not occur which prevent the fulfillment of safety-related functions, and failures resulting in scrams and unnecessary actuations of safety related systems are minimized. All references to the rule are to the new § 50.65.

Two approaches, which are prescribed in paragraphs (a)(1) and (a)(2) of the rule, are provided for assuring maintenance effectiveness.

The intention of paragraph (a)(1) of the rule is that the licensee establish a monitoring regime which is sufficient in scope to provide reasonable assurance that (1) intended safety, accident mitigation and transient mitigation

functions of the structures, systems, and components (SSCs) described in paragraphs (b)(1) and (b)(2)(i) can be performed; and (2) for the SSCs described in paragraphs (b)(2)(ii) and (b)(2)(iii), failures will not occur which prevent the fulfillment of safety-related functions, and failures resulting in scrams and unnecessary actuations of safety related systems are minimized. Where failures are likely to cause loss of an intended function, monitoring should be predictive in nature, providing early warning of degradation. Monitoring activities for specific SSCs can be performance oriented (such as the monitoring of reliability and availability), condition-oriented (parameter trending), or both. The results of monitoring are required to be evaluated against the licensee-established goals. Goals should be established commensurate with an SSC's safety significance. Where available, the assumptions in and results of probabilistic risk assessments (PRAs) or individual plant examinations (IPEs) should be considered when establishing goals. The licensee is encouraged to consider analytical techniques, such as system unavailability modeling studies, which may be useful in developing goals; however, such analyses are not required.

The purpose of paragraph (a)(2) of the rule is to provide an alternate approach for those SSCs where it is not necessary to establish the monitoring regime required by (a)(1). For example, this provision might be used where an SSC, without preventive maintenance, has inherently high reliability and availability (e.g., electrical cabling) or where the preventive maintenance necessary to achieve high reliability does not itself contribute significantly to unavailability (e.g., moisture drainage from an air system accumulator). The licensee is encouraged to consider the use of reliability-based methods for developing the preventive maintenance programs covered under this section of the rule; however, the use of such methods is not required.

The purposes of paragraph (a)(3) of the rule are two-fold: (1) This provision requires that SSC performance or condition goals, performance or condition monitoring, and preventive maintenance activities implemented pursuant to paragraphs (a)(1) and (a)(2) be evaluated in light of SSC reliabilities and availabilities. In the case of SSCs treated under paragraph (a)(1), adjustments are to be made to goals, monitoring, or preventive maintenance requirements where equipment

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performance or condition have not met established goals. Conversely, at any time the licensee may eliminate monitoring activities initiated in response to problematic equipment performance or industry experience once the root cause of the problem has been corrected or the adequacy of equipment performance has been confirmed. In the case of SSCs treated under paragraph (a)(2), adjustment of preventive maintenance requirements may be warranted where SSC availability is judged to be unacceptable. SSCs treated under paragraph (a)(2) which experience one or more maintenance-preventable failures, should become subject to the requirements of (a)(1) (see discussion below) or, where this is not feasible, may require other remedial action, such as modification or replacement.

(2) This provision provides that the planning and scheduling of maintenance should consider the cumulative impact of all equipment simultaneously out of service on plant safety.

A regulatory guide providing an acceptable methodology for implementing this rule will be developed by the NRC staff and issued for public comment. To permit ample opportunity for licensees to comply with the five year implementation schedule specified in the rule, the regulatory guide is expected to be available in final form two years from the date this rule is promulgated.

Additional Guidance

Scope of Monitoring

It is not the intent of the Commission to require a monitoring program so extensive that it detracts from licensees' ability to otherwise maintain equipment. The extent of monitoring may vary from system to system depending upon system importance to plant risk. Some monitoring at the component level may be necessary; however, it is envisioned that much of the monitoring could be done at the system or train functional level. For example, for less risk-significant systems, indicators of system reliability (where sufficient performance data exist) and availability may be all that is necessary. Some parameter trending, beyond that already required by NRC requirements to provide early warning of degradation, may also be necessary for critical components whose unavailability causes a system train to be unavailable or whose failure is otherwise unacceptable. Rather than monitoring the many SSCs which could cause plant scrams, the licensee may choose to establish a performance indicator for unplanned automatic

scrams and, where scrams due to equipment failures have been problematic or where such scrams are anticipated, choose to monitor those initiators most likely to cause scrams.

It is not intended that this monitoring requirement duplicate activities currently being conducted, such as technical specification surveillance testing, which could be integrated with, and provide the basis for, the requisite level of monitoring. Consistent with the underlying purposes of the rule, maximum flexibility should be offered to licensees in establishing and modifying their monitoring activities.

Reliability and Availability of SSCs Subject to Either Paragraph (a)(1) or (a)(2)

SSCs which are treated under paragraph (a)(1) may have formally established reliability and availability goals against which they are explicitly monitored, where goals of this nature are appropriate. In addition, and regardless of the nature of the monitoring and goals established to satisfy paragraph (a)(1), reliability and availability over the longer term must be assessed periodically pursuant to the requirements of paragraph (a)(3), as part of the evaluation of goals, monitoring requirements, and preventive maintenance requirements.

The reliability and availability of SSCs which are treated under paragraph (a)(2) are required to be considered under the requirements of paragraph (a)(3), as part of the periodic assessment of preventive maintenance requirements.

Paragraph (a)(2) Is Not Intended To Be Used To Justify Continuing the Status Quo, Where the Status Quo Is Not Effective in Ensuring Acceptable Levels of Availability and Reliability

Under the terms of paragraph (a)(2), preventive maintenance must be demonstrated to be effective in controlling the performance or condition of an SSC such that the SSC remains capable of performing its intended function. Hence, it is expected that, where one or more maintenance-preventable failures occur on SSCs treated under this paragraph, the effectiveness of preventive maintenance is no longer demonstrated. As a result, the SSC would be required to be treated under the requirements of paragraph (a)(1) until such time as a performance history is established to demonstrate that reliability and availability are once again effectively controlled by an established preventive maintenance regimen. Once such a demonstration has been made, it would be acceptable to

return to treating the SSC under paragraph (a)(2).

Paragraph (a)(3)—Assessing the Cumulative Impact of Out-of-Service Equipment on Performance of Safety Functions—Use of PRA

Assessing the cumulative impact of out-of service equipment on the performance of safety functions, as called for under paragraph (a)(3), is intended to ensure that the plant is not placed in risk-significant configurations. These assessments do not necessarily require that a quantitative assessment of probabilistic risk be performed. The level of sophistication with which such assessments are performed is expected to vary, based upon the circumstances involved. The assessments may range anywhere from simple deterministic judgments to the use of an on-line living PRA. It is to be expected that, over time, assessments of this type will be refined based upon technological improvement and experience.

Derivation of the Final Rule

The final rule is comprised of a subset of the aspects of the proposed maintenance rule and its associated draft regulatory guide, which were issued for public comment on November 10, 1988, and on August 17, 1989, respectively. The final rule includes only those aspects that are "results-oriented", including those addressing establishment of goals, monitoring and assessment of maintenance effectiveness, feedback and corrective actions, and, in a more limited manner, predictive and preventive maintenance. These aspects were detailed in Regulatory Positions C.3, C.5, and C.6 of the draft regulatory guide and were the subject of considerable public comment in response to Questions 3, 9, 10, and 11 posed by the Commission when it issued the proposed maintenance rule. These comments are addressed in the summary of public comments accompanying the final rule. Details of the derivation are discussed below.

Establishment of Goals and Monitoring

Section 50.65(a)(1) requires the monitoring of performance or condition of structures, systems, and components (SSCs) against licensee-established goals. These requirements were drawn from the requirements of the proposed rule, in §§ 50.65(c) (1) and (2), and elements (b) (1)(iii), (5), (10), and (17). The statement of considerations (SOC) for the proposed rule also discussed the process of establishing goals, monitoring, and taking appropriate corrective action, see 53 FR 47825.

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Comments on appropriate methods of monitoring, the need for, form of, and possible kinds of effectiveness criteria, and the use of performance indicators for component reliability and maintenance performance were requested, see questions 9 and 10, 53 FR 47825. Comments on criteria and quantitative goals were also requested in the *Federal Register* notice accompanying the publication of the draft regulatory guide, see 54 FR 33983. The draft regulatory guide discussed goal setting and monitoring in sections C.1.1, C.1.3, C.3.2, C.4.6.4, C.5.2.2, C.5.2.3, C.5.2.4, and C.6.

Consideration of industry-wide operating experience under § 50.65(a)(1) as well as § 50.65(a)(3) of the final rule were anticipated by: (1) The proposed rule's discussion of a draft NUREG report which surveyed maintenance practices, 53 FR 47824, (2) a recommendation in the SOC concerning use of the NPRDS, *id.*, and (3) Questions 10 and 11 of the SOC, 53 FR 47825. It was also alluded to in section C.5.2.3 of the regulatory guide, and discussed in section C.3.2.

Corrective Action

The final rule's requirements that corrective action be taken in response to the results of monitoring, and that at least an annual evaluation of the monitoring, goal establishment and corrective action activities were presaged by the proposed rule's requirement in § 50.65(c)(2) for assessment the effectiveness of the maintenance program and making appropriate improvements, Element (1)(ii) of the proposed rule, and the regulatory guide's discussion on the functioning of the maintenance process, *e.g.*, sections C.1, C.1.3 and C.1.4, C.3.2, C.4, C.5.1, and C.6.

Preventive Maintenance

Preventive maintenance, which is endorsed by § 50.65(a)(2) of the final rule, was one of the elements of the proposed rule, see 53 FR 47828, Element 1(ii). The regulatory guide addressed preventive (also referred to as "proactive") maintenance in sections C.2 and C.4.6.1.

Scope of SSCs Subject to Maintenance

The scope of SSCs subject to the final maintenance rule includes safety-related SSCs, and certain "non-safety" SSCs in the BOP which meet one or more of four specific criteria. See final rule, § 50.65(b). The matter of scope was addressed in the proposed rule, which suggested that all SSCs in a nuclear power plant, including those in the balance of plant (BOP) were to be

subject to the proposed rule's maintenance requirements. See proposed rule, § 50.65(b). The regulatory guide indicated that the rule applies "to all parts of the plant that could significantly impact safe operation and security, including the BOP". See Sections B., C.1. Comments on scope of SSCs were solicited in the SOC for the proposed rule at Question 7 (53 FR at 47825), and in the proposed regulatory guide at Question 2 (see 54 FR 33983).

As shown by the above, all of the significant provisions of the final rule were presaged in the proposed rule and in the proposed regulatory guide. The final rule is not a significant departure from NRC proposals offered for public comment except that, as noted, the final rule is a subset of those proposals. Since all of the elements of the final rule were the subject of extensive public comment, there is no need to publish the final rule as a proposed rule for still more comment. As noted, there will be further comment on the rule's implementing guidance. Clearly, given the period allowed for implementation, there can be adjustments made to the rule before it becomes effective should further developments so require.

Industry Programs

The Commission encourages industry initiatives and responsibility for problem identification and resolution. Several guidelines exist in the industry (*e.g.*, INPO 90-008, "Maintenance Programs in the Nuclear Power Industry," Institute of Nuclear Power Operations) that are directed toward providing performance objectives and criteria for effective maintenance programs. With regard to the programmatic aspects of maintenance, the Commission encourages the industry to continue the development and improvement of such guidelines and to standardize recommendations and guidance for plant maintenance programs. In acknowledgement of the generally satisfactory state of maintenance programs, the final rule provides great flexibility for the industry to continue developing, improving and implementing recommendations and guidance concerning maintenance programs. The Commission encourages such activities, especially as they support improvements in the evaluation of maintenance program effectiveness.

Implementation and Compliance

The focus of the rule is on the results achieved through maintenance and, in this regard, it is not the intent of the rule that existing licensees necessarily develop new maintenance programs. However, because the Maintenance

Team Inspections identified weaknesses in some licensees' maintenance programs, it is expected that each licensee will assess its program and take appropriate action to improve those areas where weaknesses were identified. The rule has a five year implementation schedule with supporting regulatory guide development and promulgation expected within the first two years. This schedule allows three years for licensee development beyond the time that final guidance is expected to be available. Implementation and compliance with the rule is achieved through SSC performance or condition monitoring against appropriate licensee-established goals or, as an alternative, through the conduct of preventive maintenance that has been demonstrated to be effective. Where the performance or condition of SSCs is determined to be unacceptable, corrective action is required. Additionally, compliance is achieved through the periodic assessment of monitoring, goals, and preventive maintenance activities to ensure that the objective of minimizing SSC failures is being met, consistent with the objective of minimizing SSC unavailability due to monitoring and preventive maintenance.

Summary of Public Comments

The comment period for the proposed rule closed February 27, 1989, and for the draft regulatory guide October 17, 1989. Thirty-five comments on the proposed rule were received during the official comment period and fifty-seven were filed after the comment period closed. Thirty-six comments were received on the regulatory guide. All comment letters were considered in formulation of the final rule. Comment letters were also considered in arriving at the Commission's decisions to revise the accompanying regulatory guide to reflect the final rule's narrowed focus on results, to provide an opportunity for public comment on the revised regulatory guide, and to issue final guidance well in advance of the date specified for rule implementation.

Of the 92 comments on the proposed rule, 67 were filed by utilities, 11 by industry groups and trade associations, 4 by individuals, 3 by vendors, 3 by public interest groups, 2 by Federal Agencies, and 2 by state groups/individuals. Of the 36 comments on the regulatory guide, 22 were filed by utilities, 5 by industry and professional groups, 1 by State, 5 by corporations, 2 by individuals, and 1 by a vendor. The Commission is appreciative of the time and effort expended by those who submitted comments. Maintenance is a

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matter of considerable priority and importance, and the views expressed in the comments have been very helpful to the Commission in its deliberation. Many comments came from individual licensees, but most supported the comments prepared by the Nuclear Management Resource Council (NUMARC).

In summary, most of the commenters on the proposed rule stated that there was no need for a separate rule on maintenance for nuclear power plants because (1) the NRC already has regulatory authority and methods in place to provide an overview of maintenance program capability to ensure adequate protection of the public health and safety, (2) there has been no demonstration that the rule will increase public safety and it may actually decrease safety by diverting industry efforts away from maintenance to support activities directed toward demonstrating compliance, (3) good maintenance assessment indicators already exist for both industry and the NRC, such as the Institute of Nuclear Power Operations (INPO) performance indicators, Systematic Assessment of Licensee Performance (SALP) reviews, the NRC Maintenance Inspection Program, and Licensee Event Reports (LER's), and (4) the industry already has maintenance initiatives under way and, as a whole, the industry is improving in the maintenance area.

Many commenters considered the proposed rule unbounded in scope because there are no limits established for the BOP. They were concerned that, with such a broad and undefined scope, the industry cannot assess the impact of the proposed rule. Therefore, it was suggested that, at the very least, the final rule should be postponed until issuance of the regulatory guide.

NUMARC and most utilities commented that, without measures of effectiveness stated in the proposed rule, they did not know what requirements or expectations would be needed to implement the proposed rule and determine regulatory compliance. There was concern that effectiveness, as specified in the proposed 10 CFR 50.65(c), is a qualitative matter and subject to different interpretation by both licensees and the NRC. There was also concern that the lack of criteria describing adequate programs places a burden on the industry and public to assess what is needed for the broad subject area defined in the proposed rule by the NRC and that the proposed rule establishes requirements for specific program elements (10 CFR 50.65(b)) that are not defined. Most

commenters felt that a prescribed set of maintenance performance indicators (MPIs) cannot be used as the sole basis for evaluating the effectiveness of a maintenance program.

NUMARC believes that the existing regulations do not establish requirements similar to the proposed rule, especially with regard to BOP equipment. Therefore, licensees will be forced to modify their maintenance programs to satisfy new requirements, which means the standards of a backfit analysis (10 CFR 50.109) apply.

NUMARC further stated that the "adequate protection" standard of 10 CFR 50.109(a)(4) does not apply with regard to implementing the proposed rule. They feel that this was not supported by data provided in the proposed rule or the accompanying regulatory analysis. They felt that the public risk reduction data used in the regulatory analysis was outdated, that recent data by both the industry and the NRC should be used to evaluate public risk reduction, and that the increased costs associated with implementation were grossly underestimated.

NUMARC further believes that industry objectives and programs are consistent with the NRC expectations stated in the March 1988 Policy Statement on Maintenance of Nuclear Power Plants. NUMARC believes that increased emphasis has been placed on maintenance, improvements in performance and reliability have been achieved, and therefore the promulgation of a rule is now unnecessary and unjustified. They believe that the NRC should take action against the few poor maintenance performers, rather than promulgate a rule across the whole industry.

Two individuals, three public interest groups, and two State representatives were supportive of a maintenance rule but were not necessarily in total agreement with the way the rule was formulated or how it should be implemented. They believed that nuclear power plant maintenance directly affects the health, safety, and economic well-being of the public and that nuclear facilities not properly maintained will be unsafe and uneconomical, even with the best design, construction, and operation. They believe that improper maintenance, even of components not previously associated with safety, can have adverse safety consequences. Furthermore, they believe that the superior performance of nuclear power plants in other countries is attributed to their maintenance program. One State representative believes that the

maintenance standard should be published initially as a guide and not as a rule that utilities should have the prerogative to organize in the most resource-effective manner their approach to meeting the key components of the standard. The Commission could then evaluate experience under the regulatory guide to determine whether a rule is required. One individual was against a rule because the industry has a good safety record and the rule would be costly and an unnecessary burden on the industry.

The comments on the regulatory guide raised many of the same issues as those comments associated with the proposed rule. In general the issues addressed were the level of detail in the regulatory guide; the scope of structures, systems, and components covered by the guide; the criteria to be used to determine if a maintenance program is effective; the use of quantitative goals for determining satisfactory level of performance for plant maintenance programs; the quantitative measures for such goals; the usefulness of NPRDS data for assessing effectiveness of plant maintenance programs; the usefulness of PRAs for plant maintenance programs; the timeliness of corrective actions; the definition of maintenance; the documentation of the technical basis of a maintenance program; and the extent of root cause analysis and feedback.

These comments on the proposed rule were either repeated or expanded in the commenters' responses to the 12 questions posed by the Commission in the Statement of Considerations for the proposed maintenance rule. These questions are listed below; and each response contains a synopsis of the public comment and the Commission response for that particular question. Where appropriate, the responses reflect the revisions to the final version of the maintenance rule. The responses also include consideration of the public comments received on the draft regulatory guide.

1. Is it appropriate for the nuclear power industry to develop a Maintenance Standard and, if so, would the industry develop such a Maintenance Standard?

Comments—Most commenters feel that another maintenance standard is not needed. They believe that the guidelines developed by INPO provide the basic framework of a standard and could be expanded to accommodate NRC requirements. The Policy Statement on Maintenance, existing industry standards, and the INPO Guidelines for the Conduct of Maintenance at Nuclear Power Plants

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contain the information needed to ensure effective maintenance programs. If a standard is to be developed, all utilities prefer a standard developed by industry rather than by NRC with INPO or NUMARC taking the lead. One citizen's group stated that the NRC, not the industry, should develop the maintenance standard. No commitment was received during the comment period to develop a maintenance standard.

Response—The Commission encouraged the industry to develop a maintenance standard because the Commission believed that the development of a standard would allow maximum utilization of current industry initiatives toward developing and implementing effective maintenance programs and that licensee participation in the development of the standard would provide additional incentive and responsibility for improving plant maintenance programs. In addition, the Commission believed that the effort would benefit from industry's expertise in this area and that it would be more likely that the maintenance practices from plants with good maintenance programs would become part of the industry-developed maintenance standard.

On April 17, 1990, NUMARC submitted INPO 90-008, "Maintenance Programs in the Nuclear Power Industry," as the industry maintenance standard. The Commission reviewed this document and found that, with minor modification, it formed a comprehensive description of the necessary attributes of a maintenance program. In acknowledgement of this document, the generally favorable results of the NRC's Maintenance Team Inspections regarding the adequacy of licensees' maintenance programs, and the many other industry initiatives in this area, the Commission revised the rule to emphasize the effectiveness or results of maintenance programs and de-emphasize the programmatic aspects of maintenance. Also, in acknowledgement of the generally satisfactory state of maintenance programs the final rule provides great flexibility for the industry to continue developing, improving and implementing recommendations and guidance concerning maintenance programs. The Commission encourages such activities, especially as they support improvements in the evaluation of maintenance program effectiveness. However, because the rule has been modified to de-emphasize programmatic requirements of maintenance, the Commission does not currently intend to formally endorse an industry maintenance program standard.

2. What level of detail should be included in the Maintenance Standard?

Comments—NUMARC and the utilities believe that any maintenance guidelines or standard should provide a general description of the necessary elements of a good maintenance program, but the details for implementation should be left to the individual utility. The emphasis should be on meeting the intent so as not to force a utility to change a well-working individual program solely for the purpose of standardization across the industry. The standard should have a balance of flexibility and specificity to avoid vague criteria that will lead to areas of varying interpretation and dispute. The current industry performance objectives, criteria, and guidelines developed by INPO allow the flexibility for individual utilities to meet the intent of the guidelines by meeting the criteria directly or by other appropriate means. One utility feels that it would be counterproductive to develop a minimum standard that could potentially lower the level of performance for the entire industry when only a few plants are experiencing problems. Another utility stated that a new rule or regulatory guidance will result in increased documentation, decreased flexibility to change and adjust programs as conditions or technology change, and decreased incentive for the maintenance staff to improve or enhance their maintenance capability. This could lead to a diversion of utility resources from safety-related activities and increase costs with minimal benefits.

The commenters generally feel that any maintenance standard requiring an analysis of all SSCs for function and objective was practically unattainable and would significantly divert technical resources necessary for safe and reliable operation of a nuclear plant, with questionable benefit. Any standards, guidelines, or criteria should be tailored appropriately to the safety significance of the equipment being maintained and the function being performed.

Response—As noted in the Commission response to Item 1, the final rule has been modified to establish a framework for evaluating the effectiveness of maintenance programs. As such, the rule describes the basic elements for measuring the effectiveness of maintenance and taking appropriate corrective action where maintenance is found to be ineffective. These elements include establishing goals, monitoring and assessment against these goals, feedback, and appropriate corrective

action. The regulatory guide will be revised to reflect the rule's narrower focus on results and maintenance program effectiveness, and will describe a means for meeting the requirements of 10 CFR 50.65 acceptable to the staff. The rule and regulatory guide combination will provide a framework for evaluating the continuing overall effectiveness of maintenance, focusing on the objective of an effective maintenance program, while at the same time permitting licensees broad discretion and flexibility in the formulation and implementation of their individual maintenance programs.

The rule does not require a monitoring program so broad in scope that it detracts from a licensee's ability to otherwise maintain its equipment. The extent of monitoring may vary from system to system, depending upon system importance to risk. Some monitoring at the component level may be necessary; however, it is envisioned that the majority of monitoring could be done at the system or train functional level. This monitoring requirement is not intended to duplicate activities currently being conducted which could be integrated with, and provide the basis for, the requisite level of monitoring. The Commission response to Question 7 has further details on scope and level of detail.

3. Is two years a reasonable time to develop and implement a standard?

Comments—NUMARC and the utilities feel that two years was enough time to develop a standard depending on the scope of the BOP SSCs and components that need to be addressed. They stated that the systematic evaluation of all SSCs as described in the proposed rule alone would require more than two years. Most of the industry agrees that it would take two years to develop the standard and three to five years to implement it. One citizen's group feels that two years is too long for developing and implementing a standard; one year would be more appropriate.

Response—During the time the Commission held rulemaking in abeyance, the industry developed and submitted INPO 90-008 to the Commission. The Commission also developed a regulatory guide that incorporated appropriate public comments. Furthermore, the MTIs found that licensee maintenance programs have improved, and there are programs for improving maintenance developed by the industry. Therefore, the Commission believes that two years was ample time to develop and implement a standard.

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The Commission acknowledges that a systematic evaluation of SSCs could require as much as two or more years. Consequently, the final rule has a five year implementation schedule which allows at least three years for these evaluations beyond the time when final guidance is expected to be available.

4. Is it appropriate for a designated third party to certify plant maintenance programs to comply with the Maintenance Standard; if so, would an organization be willing to perform such certification?

Comments—Of the comments that addressed this question, most stated that it would be inappropriate for the NRC to delegate certification responsibility to a third party. The degree of opposition ranged from "not necessary" to "vigorously opposed." Most comments stated that third party certification would be unnecessary because existing measures that accomplish this function such as maintenance inspections and INPO evaluations. Some comments indicated that INPO could perform certification but not if a rule existed since that would place INPO in the position of a regulator. One respondent clearly stated that INPO should not be allowed to perform maintenance certifications for the NRC.

Response—It was the Commission's intent to build upon industry initiatives to encourage good maintenance practices and common standards. A certification process against a maintenance standard by a third party was raised as an option that would have provided some degree of consistency and independence without relieving NRC of its regulatory responsibility to oversee the process.

Because a viable third party certification process was not offered by the industry, the Commission is no longer pursuing this as an option. Additionally, as noted in Question 1, because the rule has been modified to de-emphasize programmatic requirements of maintenance, the Commission does not currently intend to formally endorse an industry maintenance program standard.

5. The Commission plans to issue by November 1989, a regulatory guide establishing standards and criteria for determining what constitutes an effective maintenance program. This regulatory guide is being developed in parallel with the final rulemaking. The Commission encourages the industry to develop standards and acceptance criteria. If an acceptable industry standard is available in this timeframe, the Commission will consider endorsing the industry standard in the regulatory

guide. An industry commitment to develop a maintenance standard, consistent with the Commission's schedule to issue a final regulatory guide by November 1989, would be necessary during this public comment period.

Comments—Most respondents believe that issuance of a rule without public comment on a regulatory guide was inappropriate. Many feel that the most important NRC document concerning maintenance will be the regulatory guide and not the maintenance rule. Industry feels that the current standards as embodied in publications such as INPO 85-038 are sufficient and that a rule and regulatory guide are unnecessary. Several industry respondents said that they would be willing to participate with the NRC in developing a standard but that the November 1989 time constraint was unrealistic. Several respondents appeared to feel that the proper way to upgrade maintenance would be by first developing a regulatory guide and then a rule if use of the guide indicated that such a rule was needed. If the current industry standards were not enough, most feel that the NRC has the responsibility to develop the regulatory guide, though the industry respondents feel that they should have input to such a guide. INPO's position is that use of INPO 85-038 as a basis for a regulatory guide would be inappropriate.

Response—The Commission believes that, by clearly putting forth a standard for an effective maintenance program in one document, guidance and stability would be provided to help ensure that the maintenance programs of all licensed plants achieve and maintain a satisfactory level of effectiveness. The Commission believes that the development of a standard by industry would support industry's current initiatives toward developing and implementing effective maintenance programs, and that utility participation in preparing a maintenance standard would provide additional experience, incentive, and responsibility for improving plant maintenance programs. The Commission was encouraged by NUMARC's submittal of INPO 90-008 as an industry maintenance standard. In acknowledgement of this document, the generally favorable results of the NRC's Maintenance Team Inspections regarding the adequacy of licensees' maintenance programs, and the many other industry initiatives in this area, the Commission revise the rule to emphasize the effectiveness or results of maintenance programs and de-emphasize the programmatic aspects of maintenance. Also, in acknowledgement

of the generally satisfactory state of maintenance programs, the final rule provides great flexibility for the industry to continue developing, improving and implementing recommendations and guidance concerning maintenance programs. The Commission encourages such activities, especially as they support improvements in the evaluation of maintenance program effectiveness. However, because the rule has been modified to de-emphasize programmatic requirements of maintenance, the Commission does not currently intend to formally endorse an industry maintenance program standard.

The Commission does not agree with commenters who suggested the issuance of a regulatory guide without a rule. The Commission desires to put forth requirements for evaluating the effectiveness of maintenance programs, including the issuance of implementing guidance, to clarify NRC regulatory purview and to provide additional enforceability. The revised regulatory guide will reflect the narrower, results-oriented focus of the rule. The details for the conduct of activities supporting maintenance will not be specified and should be developed by the licensee to ensure the adequate performance of plant equipment. Several guidelines exist in the industry (e.g., INPO 90-008 "Maintenance Programs in the Nuclear Power Industry," Institute of Nuclear Power Operations, and others sponsored by ANS, ASME, and EPRI) directed toward providing detailed recommendations for the effective conduct of maintenance activities. The industry is encouraged to continue the development and improvement of such guidelines and to standardize recommendations and guidance for plant maintenance programs.

6. The Commission believes that the proposed maintenance rule should be considered under 10 CFR 50.109(a)(4) of the backfit rule which would exempt the maintenance rule from backfit requirements based on the precepts that effective maintenance is necessary to assure adequate public protection and that the proposed rule codifies and standardizes previously existing Commission requirements, both explicit and implicit, in plant technical specifications, licensee safety analysis reports, and 10 CFR part 50, appendix B. The Commission requests public comment concerning the need for a backfit analysis for this rulemaking.

Comments—The nuclear industry commenters uniformly believe that a backfit analysis must be prepared for the maintenance rule. The most comprehensive responses were

submitted by two nuclear industry groups: The Nuclear Utility Backfitting and Reform Group (NUBARG), and NUMARC. Many utility commenters endorsed NUMARC's response or repeated arguments made by NUMARC. A law firm, Conner and Wetterhahn, also provided substantial comments that were generally consistent with those from NUMARC and NUBARG. In addition, a number of utility commenters joined in NUBARG's comments. The U.S. Department of Energy also agrees with the industry on a need for a backfit analysis. Only one commenter, Nuclear Information and Resource Service (NIRS), supported the Commission's position.

NUBARG contends that the Commission "misapplied" the adequate protection exemption in the backfit rule in four respects. First, NUBARG asserted that the Commission prevented the public from reasonably commenting on the backfit issue by failing to specify whether it was relying on 10 CFR 50.109(a)(4)(ii), which exempts from analysis those rules that are "necessary to ensure that [a] facility provides adequate protection to the health and safety of the public," or the provisions of § 50.109(a)(4)(iii), which exempts those rules that involve "defining or redefining what level of protection to the public health and safety or common defense and security should be regarded as adequate."

Next, after quoting from two passages in the notice of proposed rulemaking for the maintenance rule that suggest that the Commission is relying on both § 50.109(a)(4) (ii) and (iii), NUBARG appeared to contend that such reliance is logically inconsistent. No reasoned argument was presented by NUBARG in support of its contention, nor did NUBARG specifically criticize the Commission's reliance on § 50.109(a)(4)(ii). Rather, NUBARG focused on § 50.109(a)(4)(iii), arguing that the Commission's position that effective maintenance is necessary for adequate protection must logically rest on the presumption that none of the currently operating nuclear power plants do provide adequate protection.

In any event, NUBARG also argued that the Commission's decision not to prepare a backfit analysis for the maintenance rule represents an unwarranted departure from the policies underlying the backfit rule—an "alarming retreat." Lastly, NUBARG argued that the Commission's reliance on the "adequate protection" exemption of § 50.109(a)(4) is in "logical conflict" with the Commission's alternative ground that the rule is justified on the

basis of the criteria contained in the backfit rule.

NUMARC followed and expanded on NUBARG's arguments. NUMARC asserted that a backfit analysis is necessary solely because the maintenance rule would impose substantial new requirements on licensees and require the expenditure of significant resources by virtue of the maintenance rule's expansion of maintenance to the BOP. This argument was echoed by several other utility commenters. Next NUMARC attacked the Commission's assertion that the maintenance rule codifies and standardizes previously existing requirements by pointing out that the rule would require maintenance for SSCs in the BOP. NUMARC also followed the NUBARG reasoning that any redefinition of the standard of adequate protection to include maintenance must necessarily presume and admit that "all U.S. nuclear power plants are currently operating at a level below the 'adequate protection' baseline until they improve their maintenance program."

Although NIRS agreed with the Commission that a backfit analysis need not be prepared for the maintenance rule, their agreement was partially couched on their position that the 10 CFR 50.109 is an invalid rule.

Response—The Commission has determined to prepare a backfit analysis for the final rule.

7. The Commission believes that the inclusion of balance of plant (BOP) equipment in the proposed maintenance rule is necessary and proper. However, the Commission also recognizes that some licensee maintenance programs, as presently configured, apply to structures, systems, and components that are without question, irrelevant to protection of public health and safety from radiological hazards associated with the operation of the nuclear power plant. The Commission requests public comment concerning what limitation, if any, should be placed on the final maintenance rule to provide some licensee flexibility in this regard.

Comments opposing including BOP equipment are summarized as follows: BOP equipment is outside the NRC's jurisdiction; the statutory jurisdiction of the NRC to regulate BOP components is limited to those BOP structures, systems, and components that are related or important to nuclear safety; the economic impact of including nonsafety BOP equipment would be staggering; and the resulting improvement to safe operation of the plant would be disproportionate to the cost involved or

could divert resources that would be more profitably spent on critical safety systems and components. The proposed rule did not define BOP SSCs, thereby not providing a meaningful opportunity for public comment. NRC should withdraw the proposed rule and develop a definition and a list of typical BOP SSCs that are related or important to nuclear safety. BOP systems were not built to the standards of safety-related equipment and will not be capable of being maintained at the same level of readiness. For example, the proposed rule would require the proper maintenance of a component that is not required to be properly installed. However, if NRC proceeds with rulemaking and if BOP SSCs must be considered, it should be on a graded approach depending on a given BOP system's potential impact on safety functions. The utility must retain the ability to determine the requirements applicable to specific SSCs based on safety, reliability, and economic considerations. Instead of including all BOP SSCs, the rule must focus on the maintenance of functions whose failure would threaten public health and safety.

Comments in favor of including BOP SSCs are summarized as follows: The maintenance rule should cover the whole plant. Unplanned reactor trips often originate in BOP systems. Furthermore, seemingly irrelevant parts of the plant can affect plant operations in unforeseen ways—for example, at Surry in the aftermath of the pipe break.

Response—The Commission does not agree that maintenance of SSCs in the BOP is beyond the statutory jurisdiction of the Commission. Pursuant to section 161 and 182 of the Atomic Energy Act (AEA), the Commission has broad authority to protect the public health and safety, and the common defense and security and to minimize losses to life and property. Maintenance of SSCs in the BOP falls within this regulatory authority because such SSCs can and do have a significant effect on safety.

With regard to safety, SSCs in the BOP have initiated transients and caused scrams and safety injection. Probabilistic risk assessments (PRAs) confirm that, for many plants, dominant accident sequences are initiated by transients in the BOP such as loss of offsite power or loss of feedwater. Therefore, to ensure that licensees operate safely, NRC's regulatory program is intended to ensure both a low frequency of transients that challenge safety systems and a high reliability of safety systems to respond to these challenges. This approach to regulation is part of the fundamental

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principle of defense-in-depth that underlies all NRC regulation. Defense-in-depth provides for both accident prevention and accident mitigation with principal emphasis on prevention.

Therefore, the Commission is well within its statutory jurisdiction in requiring that all SSCs that can significantly affect safety, including those in the BOP, be properly maintained. Indeed, the Commission's regulations already reflect the importance of maintenance of SSCs in ensuring adequate protection to public health and safety. Section 50.34(b)(6)(iv) requires an FSAR to include the "plans for conduct of normal operations, including maintenance, surveillance, and periodic testing of structures, systems, and components." The Standard Review Plan (SRP) (NUREG-0800), against which applicants for licenses after 1982 are required to evaluate their facility (see 10 CFR 50.34(q)), requires applicants to evaluate a number of SSCs in the BOP, including design and installation as they affect safety. For example, the pressurizer relief tank system, which is "nonsafety related," is addressed in section 5.4.11 of the SRP. Of note is the rationale for reviewing the design of the pressurizer relief tank:

"The review is primarily directed toward assuring that its operation is consistent with transient analyses of related systems and that failure or malfunction of the system could not adversely affect essential systems or components in accordance with applicable criteria."

Thus, the Commission has previously recognized that certain SSCs in the BOP can have a significant effect on safety and has exercised its regulatory authority by requiring the evaluation of the potential effect of nonsafety-related SSCs on safety. This is the same rationale for requiring maintenance of SSCs, including those in the BOP, that can significantly affect safety.

The Commission agrees with the comments that the scope of the rule should be narrowed; not all of the BOP has the same safety significance. Accordingly, the scope has been modified to include only those BOP SSCs whose failure could most directly threaten public health and safety. Therefore, the scope of the rule has been modified as follows:

The scope of the monitoring program * * * shall include safety related and nonsafety related structures, systems, and components as follows:

(1) Safety related structures, systems, or components that are relied upon to remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary, the capability to

shutdown the reactor and maintain it in a safe shutdown condition, and the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR part 100 guidelines.

(2) Nonsafety related structures, systems, or components:

- (i) That are relied upon to mitigate accidents or transients or are used in plant emergency operating procedures (EOPs); or
- (ii) Whose failure could prevent safety-related structures, systems, and components from fulfilling their safety-related function; or
- (iii) Whose failure could cause a reactor scram or actuation of a safety-related system.

This scope does not go beyond the jurisdiction of the NRC. This clarification of the scope should bound the scope, focus licensee resources on SSCs with the most safety significance, and reduce the cost impact projected by the comments.

The Commission recognizes that BOP SSCs may have been designed and built with normal industrial quality and may not meet the standards in appendix B to 10 CFR part 50. It is not the intent to require licensees to generate paperwork to document the basis for the design, fabrication, and construction of BOP equipment not covered by appendix B. Instead, it is the intent to ensure that each licensee's maintenance program minimizes failures in those BOP SSCs that affect safe operation of the plant. In response to comments, security has been deleted from 10 CFR 50.65 as it is adequately addressed in § 73.46(g) and § 73.55(g).

8. The Commission believes that individual worker accountability plays an important role in an effective maintenance program. The Commission is, therefore, soliciting comments on the means for incorporating this consideration into a licensee's maintenance program.

Comments—Respondents consistently agreed that worker accountability was an important and necessary part of a good maintenance program. Several of them gave examples for how their utility holds its employees accountable for their work. These examples all fell within the broad context of the personnel management system, i.e., selection, training, performance appraisal, supervision, promotional policies, etc. Most feel that rulemaking on worker accountability is impossible, unnecessary, or inappropriate. Several cited the fact that worker accountability was a subject of negotiation between utility management and labor bargaining units. Several cited existing regulations (10 CFR part 2, appendix C, and 10 CFR 50.110) as already requiring worker accountability. One respondent said that the licensee should be responsible, not

the worker. One respondent expressed a concern that a rule that included worker accountability would be interpreted as punitive by workers.

Response—The Commission and industry have both recognized the importance of developing an attitude of accountability on the part of each and every worker in a nuclear power plant. The Commission agrees with industry that regulation of this area would be difficult to enforce objectively. The Commission concludes that each licensee should include considerations for emphasizing worker accountability based on local conditions; and the Commission will not attempt to deal specifically with this issue in the rule or regulatory guide.

9. The Commission desires to establish criteria within the maintenance rule which would form the basis for determining when a maintenance program is fully effective and additional improvement is not warranted from a safety standpoint. Such criteria might be either quantitative or qualitative and could be based on specific measurable attributes, on overall plant performance, on program results, or on other attributes. The Commission requests public comment concerning the need for such criteria, the form of such criteria, and the criteria themselves.

Comments—Of the commenters that addressed this issue, most believe that quantitative indicators could not be used solely to evaluate effectiveness and that the determination of effectiveness was subjective. Further, the commenters believe that sufficient tools already existed in the form of SALP, QA assessments, regulatory inspections, monthly operating report data, and management reviews.

One commenter noted that effectiveness needs to be defined in terms of a particular objective. Another stated that performance goals such as the number of maintenance-related reactor trips, LERs, etc., should be established. One individual commented that effectiveness needs to focus on functional failures affecting public health and safety; another suggested goals associated with general plant safety performance measures.

Several commenters expressed concern that the lack of defined performance criteria could generate either complacency or a continuous ratchet since there would be no criteria for a "fully effective program."

Response—The Commission agrees that determination of effectiveness depends on many factors and that, with regard to programmatic features, it is

subjective. The rule provides flexibility for each licensee to decide how to structure a maintenance program and conduct maintenance to achieve established performance goals. Specifically, the rule addresses (1) the development of licensee-established goals for performance, (2) the use of goals and other quantitative and qualitative means as a measure of the effectiveness of maintenance programs, and (3) the use of monitoring and assessment of equipment performance or condition against goals, or, alternatively, the demonstration of preventive maintenance effectiveness.

In general, the Commission does not intend to define specific parameters or numerical criteria in either the rule or regulatory guide; each licensee is to establish appropriate goals to assist in monitoring the effectiveness of maintenance.

10. Are performance indicators that are being used by industry, may be used in the future, or have been used in the past, appropriate candidates as quantitative measures of maintenance effectiveness? The Commission is particularly interested in experience or analysis concerning indicators or the use of indicators of component reliability as maintenance performance indicators.

Comments—In addressing this item, NUMARC and most utilities stated that general plant performance indicators that have been developed and used by the industry were not appropriate for use as the sole maintenance-effectiveness indicators because of the number of nonmaintenance-related factors included in them. Many of the proposed maintenance indicators are process indicators, which may or may not accurately reflect the state of the overall maintenance program. Such indicators are useful, but only as one tool for management evaluation of the maintenance program.

Although stating that there are presently no performance indicators in use by the industry that directly measure performance, NUMARC and the utilities recognized that some of the current industry indicators, taken in the proper context, can provide an indication of maintenance performance. Indicators can be used effectively by a specific utility as a management tool to assess the trend of performance within a given indicator or set of indicators. However, NUMARC admonished that there are individual plant variations that make absolute comparisons misleading, even for plants with the same licensee. NUMARC also stated that the comparison of plant-specific indicators to industry averages can be misleading.

Two utilities stated that there was no need to develop new performance indicators. One added that the Commission should continue to evaluate a given licensee using its current technology. The other suggested that the existing INPO Performance Indicators be revised to meet the need for a maintenance standard.

NUMARC expressed the opinion that a good maintenance program would use a combination of indicators based upon the condition, type, age, etc., of the plant and specific equipment in question. NUMARC believes that prescribing a rigid set of indicators would not achieve necessary plant flexibility and may preclude focusing on areas of more appropriate concern. Flexibility is needed to revise, delete, or add performance indicators as appropriate to provide information to management to fit circumstances, methods, and conditions that may pertain to a given plant in a specific situation. In this vein, efforts to obtain consistent data would have questionable benefit for regulatory purposes and may have deleterious effects on plant programs.

Another utility does not believe that any prescribed set of indicators can be used to judge the effectiveness of a plant's maintenance program. It also stated that no indicator or combination of indicators can give an overall measure of maintenance effectiveness. In its view, such a task must be left to the judgment of the individual licensee, INPO, and the NRC.

One individual stated that maintenance effectiveness is a measure focused on economics. He went on to say that this view clouds the focus on public health and safety. According to this commenter, the proper focus of maintenance effectiveness is on functional failures that threaten public health and safety.

NUMARC warned that component reliability by itself is not a good indicator of maintenance performance. The reason given for this position was that component reliability may be an indicator of an application, design, component, operating, or maintenance problem. NUMARC added that assessments by the plant staff or by the corporate staff, including observation of work in the field, are necessary ingredients in the measurement of maintenance performance. NUMARC pointed out that a given component failure or degradation could be allowable based on engineering judgment without indicating an ineffective maintenance program, especially for cases involving redundant or nonsignificant equipment.

Response—The Commission agrees that plant performance indicators that have been developed and used by the NRC and industry are not appropriate as the sole indicators of maintenance effectiveness. The Commission also agrees that, because of individual plant variations, performance indicators are not appropriate for making absolute plant-to-plant comparisons. However, as recognized by commenters, indicators taken in context can be used as an indication of maintenance performance. More importantly, indicators can be used by licensees as an effective management tool to assess the need for corrective actions within a maintenance program.

Operating characteristics such as consistently high availability or low equipment-caused forced outage rates over a number of operating cycles are indicators of good maintenance effectiveness. However, the plant material condition can degrade significantly before these indicators provide identification of degraded maintenance effectiveness; thus these indicators are not very timely. Based on the results of extensive work on indicator development, the Commission concludes that indicators that are based upon actual in-service component reliability and failure history provide a useful measure of maintenance effectiveness. Also, these indicators can be defined and implemented independent of the definitions and procedures that the licensee deems necessary to manage the flow of maintenance work. Knowledge of data showing component failure in excess of the industry average has the desirable property of alerting licensees to determine whether improved maintenance performance is needed. In general, the Commission agrees with NUMARC that a good maintenance program would use a combination of indicators based upon the condition, type and age of the plant and the specific equipment in question. Accordingly, the Commission has modified the final rule to allow licensees flexibility to determine the details of their individual maintenance programs.

11. Should an industry-wide component failure reporting system, e.g., NPRDS, be used by all plants in order to support the sharing of generic maintenance experience and facilitate monitoring of maintenance effectiveness?

Comments—Of the commenters, including NUMARC, who addressed this item, most recognized the usefulness of the NPRDS as a source of generic failure data. However, most of the commenters,

including NUMARC, oppose the unqualified use of the NPRDS for monitoring maintenance effectiveness for a number of reasons. Some commenters, including NUMARC, perceive such use of the NPRDS as an inappropriate regulatory intrusion into a program designed to improve communications regarding equipment performance within the industry that would tend to stifle the free exchange of information. NUMARC cited the necessary expansion of the reportable scope of the NPRDS to cover the entire BOP as a tremendous undertaking that could be prohibitively expensive. NUMARC, two utilities, and one individual believe that, although the NPRDS can be used to obtain gross indications of a problem, its usefulness is restricted because of plant-to-plant differences in maintenance practices, component application, design, environment, and the detail with which failures are reported.

Response—The Commission generally agrees with the above comments. However, the NPRDS may provide useful information for comparing plant-specific experience on equipment with a broader range of industry operating experience on similar equipment. The data does provide useful insights into maintenance trends at an individual plant.

12. Commissioner Roberts had the following views:

I cannot join the majority in supporting the proposed rulemaking on maintenance. In order to have the benefit of the public's comments, it has been my custom to agree to publication of proposed rulemakings. I cannot do so in this instance. I have asked one fundamental question. What are we trying to accomplish with this rule that cannot more effectively and innovatively be accomplished without a regulation? I have not received a satisfactory answer. I do not believe the case has been made that licensees do not have established maintenance programs. Most importantly to me, there has been no demonstration that this rule would improve implementation of existing programs. Neither have I been provided with compelling documentation on what the problem is and how, specifically, this rule will fix it. On the contrary, the trends staff has provided show continued improvement in the maintenance area.

The proposed rule the Commission is now publishing fails to provide a basis for determining when a maintenance program is effective or when improvements are "appropriate." We are even delaying publication of the accompanying regulatory guide until the final rule. Without being afforded the opportunity to review this implementation document, the Commission is left in the position of approving a specious rule. It is no wonder that this rulemaking would elicit such widespread opposition. The public is being asked to comment on a rule of

form but no substance. I believe it would be more productive to delay issuance of this proposed rule until the draft regulatory guide is available for comment. Only then can we receive meaningful comments on the rulemaking package.

I am concerned that this rule goes beyond our authority. I cannot agree with a rule that would have the NRC regulating maintenance on all systems, structures, and components regardless of whether they have a nexus to radiological safety or not. I am troubled by the attitude demonstrated when we request public comments on what limitations, if any, should be placed on the final rule to address structures, systems and components that are "without question irrelevant (my emphasis) to the protection of public health and safety." This clearly abdicates our responsibility to show that a regulation is needed. We must ask ourselves: Are we proceeding with this rulemaking for the sake of the rule itself? As attested to by the cases where the Commission cited licensees, the NRC already has the authority to enforce compliance in the maintenance area.

The arguments advanced by both the staff and the Commission in trying to comply with the requirements of the backfit rule have played a significant role in my decision not to support this proposed rulemaking. The staff argument for the rule's compliance with 50.109 has been made on the basis of cost. The staff states that " * * * the rule will provide a substantial increase in the protection of the public health and safety without any additional cost." I am skeptical of the assumptions made in the backfit and regulatory analysis and request comments on both these documents. I also request comments on the views of the ACRS. They state that " * * * there are characteristics of regulations, and especially the way in which they are typically enforced, that lead us to believe that, under a rule, a move toward uniformity would occur, and this is likely to decrease the effectiveness of some of the better existing programs." I share their concern that the existence of this rule could make things worse and diminish rather than enhance the protection of the public.

Regarding "adequate protection," the Commission appears to be saying that since effective maintenance is necessary to maintain adequate protection, this rule should be excepted under 50.109(a)(4). This exemption would prohibit staff from taking implementation costs into consideration. However, it would require that a documented evaluation be prepared for public comment. Therefore, my opposition to the exception is not to the exception itself but to the precedential nature of the use of the adequate protection argument. Let me state that I, too, strongly believe that effective maintenance is necessary to assure that nuclear power plants are safe and to provide adequate protection to the public. I also believe, just as strongly, that this rule is not necessary to provide that protection, and that as the ACRS noted, it may well have the opposite effect. I believe that we cannot afford to be careless about the use of the "adequate protection" argument for exception to the backfit rule. The Commission is in litigation about this

very issue. The Commission addressed this point in detail under the heading "Adequate Protection" in the Response to Comments on the final 10 CFR part 50 Revision of Backfit Process for Power Reactors. Let us remember that there had been concerns that in dealing with the backfit rule, the Commission would use the phrase "adequate protection" arbitrarily. The Commission could unwittingly be giving credence to that view.

Additionally, it seems to me that the Commission position on adequate protection is internally inconsistent. The Commission needs to recognize that when it states that this rule is needed to maintain adequate protection, it is saying that the current operating plants now pose undue risk to the public which we are presently tolerating. If I believed that, I would suggest (as I'm sure would the rest of the Commission) that this rule become immediately effective. This is clearly not the case. As the Commission in the very same comment shows, " * * * the proposed rule codifies and standardizes previously existing (my emphasis) Commission requirements, both explicit and implicit, in plant technical specifications, licensee safety analysis reports, and 10 CFR part 50, appendix B." It seems to me that the Commission can't have it both ways.

I request comments on my views.

Comments—Of the commenters who responded to this question, most agreed with the views of Commissioner Roberts, while only three commenters disagreed with the Commissioner. Some commenters did not provide any basis for their agreement or disagreement. However, a number of commenters expressed concerns beyond the views expressed in Question 12. These are summarized below.

A majority of the utility commenters implicitly agreed with Commissioner Roberts that the proposed rule went beyond the current authority of the Commission by requiring maintenance of all SSCs in the BOP. According to these commenters, since many SSCs in the BOP have no nexus to public health and safety, the maintenance rule would require licensees to spend their resources on unimportant areas, potentially decreasing the level of safety. One individual stated that regulators have a bias in favor of overboard regulations, pointing to the FAA's regulations on air transportation. This commenter noted that, unlike the scope of FAA's statutory charter which encompasses the development of the air transportation industry, the NRC's authority is limited to the regulation of the nuclear industry to protect public health and safety. Two utilities argued that the maintenance rule fails to provide meaningful definitions and standards of the activities required. In their view, this can lead to misinterpretation, arbitrary enforcement, and endless

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reinterpretations of the rule. One utility suggested that any industry standard on maintenance would be tailored to the lowest common denominator, and therefore there would be no net improvement in the level of safety. It also argued that, once codified, a regulatory standard of acceptance maintenance would be difficult to improve. Finally, NUMARC and the utilities also repeated their general arguments why a maintenance rule is not necessary, in particular, on the gradual improvement in the industry maintenance performance, and the INPO Self-Assessment Program. NUMARC also asserted that the Commission has sufficient authority to ensure adequate protection.

A Commissioner on the Public Service Commission of the State of Vermont stated that there is safety significance in the BOP, pointing out that recent NRC staff and industry evaluations show that improper maintenance of components not previously associated with safety has resulted in adverse safety consequences. In addition, the Commissioner indicated that superior performance of nuclear plants internationally has been associated with maintenance programs that are stricter than those in the U.S., citing the experience of Japan and France.

Response—Two of the issues raised by Commissioner Roberts and by the majority of commenters are similar to those issues raised in response to Questions 6 and 7. As discussed in the response to comments on Question 6, the Commission agrees that a backfit analysis is required for the maintenance rule. Because the current regulations provide an assurance of adequate protection of the public health and safety, the Commission is no longer proposing to exempt the maintenance rule from the requirements of a backfit analysis.

The Commission does not agree that the maintenance rule will result in decreased safety by requiring licensees to divert their resources away from SSCs and activities with greater importance to safety. The maintenance rule is being issued to ensure that the effectiveness of maintenance programs is maintained for the life of the facility and is not expected to require significant modifications to current licensee programs. The regulatory guide will provide flexibility for a licensee to structure its maintenance program in accordance with the safety significance of those SSCs. However, the Commission does agree with the comments that not all SSCs in the BOP are related to the protection of public

health and safety. Accordingly, as discussed in the response to the comments on Question 7, the scope of the rule has been modified to focus on those SSCs whose failure could most directly threaten public health and safety.

Finally, during the time the Commission held rulemaking in abeyance, the public had the opportunity to comment on the draft regulatory guide. Considering the narrowing of the focus of the final rule to a results/performance-oriented approach, the supporting regulatory guide will require revision. During the revision process, previous public comments will be considered and appropriately reflected in the regulatory guide. The regulatory guide will be revised to reflect the rule's narrower focus on results and maintenance program effectiveness, and will describe a means for meeting the requirements of 10 CFR 50.65 acceptable to the staff. Revision of the regulatory guide will again include the opportunity for public comment. Implementation of the rule is to be delayed for five years after the issuance date, with the regulatory guide expected to be available within the first two years. This schedule will allow at least three years for licensee development beyond the time when final guidance is expected to be available.

Additional Comments of Commissioner Curtiss

I believe that the approach adopted by the Commission in this final rule is sound and appropriate. The entire Commission agrees that it is important for this agency to have a regulatory framework in place that will provide a mechanism for evaluating the overall continuing effectiveness of licensees' maintenance programs. This final rule will provide that regulatory framework.

I strongly disagree with those who contend that the Commission rushed out with this maintenance rule without the benefit of public comment and with the attendant implication that the final rule was not well-considered. In point of fact, the reliability-based aspects of maintenance reflected in this final rule have been at the very heart of what the Commission has been considering in the maintenance area since as early as 1988. Indeed, it is abundantly clear from even a cursory review of the history of this issue that considerable time and attention have been devoted to the basic concepts reflected in this final rule. That history is briefly summarized below:

In the Final Commission Policy Statement on Maintenance of Nuclear Power Plants (53 FR 9430; March 23,

1988), the Commission made it clear that—

[i]t is the objective of the Commission that all components, systems and structures of nuclear power plants be maintained so that plant equipment will perform its intended function when required. To accomplish this objective, each licensee should develop and implement a maintenance program which provides for the periodic evaluation, and prompt repair of plant components, systems and structures to ensure their availability * * *. [T]he program should include the feedback of specific results to ensure corrective actions, provisions for overall program evaluation, and the identification of possible component and system problems * * *.

An adequate program should consider

- Technology in the area of—
Predictive Maintenance

- Equipment history and trending
[and]

- Measures of overall program effectiveness

The Commission went on to indicate in that same 1988 Policy Statement that—

The Commission expects to publish a Notice of Proposed Rulemaking in the near future that will establish basic requirements for plant maintenance programs. We believe that the contents and bounds of the proposed rule will fall within the general framework described in this Policy Statement * * *. We encourage interested parties to provide their views on this important subject to the Commission, even at this early stage of the rulemaking process.

53 FR 9430-31.

Thus, early on, the Commission began to consider the principal elements of the final rule adopted here by the Commission, called on licensees to incorporate those elements into their maintenance programs, and solicited public comment on such proposals.

In conjunction with the issuance of the Final Commission Policy Statement on Maintenance of Nuclear Power Plants, the Commission directed the NRC staff to develop a preferred maintenance rulemaking option requiring licensees to track certain maintenance performance indicators (See Staff Requirements Memorandum on COMKC-88-03, June 17, 1988). In response, the staff advised that the proposed rules should contain "provisions for performance assessment which licensees would implement to track the effectiveness of their maintenance programs" (See SECY-88-277, Amendment to 10 CFR part 50 Related to Maintenance of Nuclear Power Plants, p. 2, September 30, 1988). Although the staff was not in a position to suggest the use of specific

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maintenance performance indicators, it formulated a proposed rule that—

emphasizes that an integral part of a good maintenance program is the monitoring and feedback of results. In this regard, the maintenance programs should utilize quantitative indicators that are based upon actual component reliability and failure history to provide the best measure of maintenance effectiveness.

SECY-88-289, Preliminary Results of the Trial Program on Maintenance Performance Indicators, p. 5, October 7, 1988.

Indeed, the staff specifically noted that the goal of the recommendations contained in the proposed maintenance rule was to provide the NRC staff and licensees "with a practical near-term method to track maintenance effectiveness * * *" (SECY-88-289, p. 5)—the very core of the proposal that the Commission endorses in this final rule.

The resulting Notice of Proposed Rulemaking on Maintenance and the proposed rule published for comment on November 28, 1988 (53 FR 47822) contain the same equipment history and trending, effectiveness monitoring, and feedback elements as the Final Commission Policy Statement on Maintenance. They also contain clear indications that the Commission intended to include requirements for monitoring, trending, and feedback with regard to the effectiveness of maintenance in any maintenance rules that might ultimately be adopted. The need for, and details of, such provisions were emphasized in the draft Regulatory Guide that was subsequently published for comment as part of this maintenance rulemaking effort. 54 FR 33983. In turn, a number of commenters acknowledged the maintenance effectiveness measurement, trending, and feedback aspects of the proposed rule and provided their views on these matters.

In sum, it is abundantly clear from all of this that the Commission has long been considering maintenance effectiveness monitoring of the sort that a majority of the Commission now adopts in this final maintenance rule, and that the industry and the public were given clear notice and the opportunity to comment on such considerations throughout this maintenance rulemaking process. The final rule that has resulted from this careful deliberation will provide the regulatory framework that all Commissioners agree this agency must have in order to ensure the continuing effectiveness of maintenance efforts at nuclear power plants, while at the same time providing licensees broad latitude

in how they fashion their individual maintenance programs.

Commissioner Remick's Separate Comments

I respectfully differ with my colleagues inasmuch as I do not believe that there is a demonstrated need for a rule in light of significant improvements in maintenance programs resulting from Agency attention and licensee initiatives. The Commission indicates in its decision to promulgate this rule that " * * * the Commission is satisfied that the industry has been generally successful in bringing about substantial improvement in maintenance programs." Substantial improvements and favorable results are the goals that the Commission should strive for in its regulatory activities by utilizing the most effective regulatory tools for accomplishing those goals. As I argue below, I am not convinced that in this case a rule is the most effective regulatory tool for accomplishing those goals. Further, I differ inasmuch as I strongly believe that this rule should not be issued as a final rule. Although the rule is a concept worthy of discussion, it should not have been rushed out but should have been issued for the benefit of public comment.

The Commission approved criteria to be used in determining when industry progress in the area of maintenance would be sufficient to obviate a need for rulemaking (SECY memorandum from S. Chilk to J. Taylor, dated May 25, 1990). The staff performed a detailed evaluation of industry progress and concluded that the criteria had been satisfied (SECY-91-110, Staff Evaluation and Recommendation on Maintenance Rulemaking). Based upon its conclusions, the staff recommended that the Commission not proceed with a maintenance rulemaking. The ACRS agreed with the staff's recommendations. In general, I agree with the bases for the staff's conclusions. Therefore, I approved the staff's recommendation in SECY-91-110 not to proceed with maintenance rulemaking, but instead to issue a final policy statement on maintenance of nuclear power plants. I also approved the staff's recommendation to remove the maintenance escalation factor and revise the enforcement policy supplement of 10 CFR part 2, appendix C to include a specific maintenance-related example.

Further, I agree with the staff's conclusion that the industry document, INPO 90-008, "Maintenance Programs in the Nuclear Power Industry," delineates the necessary elements of effective maintenance programs. The industry's commitment to monitor the progress of maintenance implementation using the performance objectives of INPO 90-008, and the staff's intention to assess industry performance and report to the Commission after four years with an interim report after two years, are sufficient in my view to assure that there will be no backsliding of the level of industry performance of maintenance.

In general, I support a regulatory approach which stimulates licensees' and industry's initiatives, encourages innovation, permits self-management and produces positive results, under agency monitoring, in contrast to prescriptive, process-oriented regulations

which require rote adherence, stifle initiatives and depend on punitive enforcement actions for compliance. There appears to be a near-unanimous consensus that the agency and the industry have stimulated initiatives which have produced positive results, an outcome not necessarily assured even by result-oriented rulemaking.

I agree with the view that routine use of the staff's maintenance inspection approach, utilizing the Maintenance Team Inspection (MTI) Criteria proposed in conjunction with the revised policy statement, could ultimately lead to essentially the same prescriptive result as a process-oriented rule. In the interest of ensuring that the responsibility for improving, sustaining and verifying adequate maintenance performance (using industry's standard document INPO 90-008) remained with the industry, I believe that the Commission should have directed the staff to develop an approach to its routine inspections which would have concentrated on inspecting for the effective results of maintenance programs rather than inspecting the details of the process. The MTI approach would then have been reserved for use as diagnostic inspection tool in those special cases where there was a perceived maintenance problem. In my approach, the staff's proposed final policy statement on maintenance would have been revised to include these future activities.

I agree with the view that it is important for this agency to have a regulatory framework in place that will provide a mechanism for evaluating the overall continuing effectiveness of the maintenance programs, particularly as the plants continue to age. I believe that a revised final policy statement, together with the development of results-oriented inspection programs, would have provided an effective regulatory framework for such evaluation. I believe that the performance-based rule that the majority of the Commission has approved has some innovative features, and may be particularly appropriate for monitoring the effectiveness of maintenance programs for the advanced reactors. However, I do not agree with the view that the proposed rule in no way interferes with the process-related activities which the licensee community, to its considerable credit, has undertaken voluntarily. It may be argued that licensees will not have to change their maintenance programs to meet the provisions of the rule as it is written. Nevertheless the focus of the NRC's attention on implementation of a new rule almost always carries with it the strong potential for impact on the licensees' initiatives and programs and thus an inherent disincentive to not innovate or participate in new initiatives.

One way of determining the potential impact of this rule would have been to issue it for public comment. I think that issuing the proposal for public comment would be good policy, and consistent with the Commission's Principles of Good Regulation, which state that all available facts and opinions be sought openly from licensees and other interested members of the public. To rush a final rulemaking package that contains some fundamental changes from the direction the

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Commission has taken over the past several years, without seeking all available facts and opinions, is likely to lead to implementation problems that the Commission may not be aware of now.

The final rule represents a significant departure from the proposed rule. The proposed rule issued in 1988 focussed on what the **Federal Register** notice for the proposed rule called "maintenance practices" and "the adoption of common maintenance standards"—in a word, "processes", or "systems" of maintenance (53 FR 47824). The notice stated that "regulation [of maintenance] by outcomes rather than processes" would be the subject of "follow-on rulemaking" (id.). The final rule, however, is focussed on outcomes and thereby seems to have concluded the "follow-on rulemaking" before it was begun. Although the proposed rule contained monitoring and trending components, they were only a few among seventeen maintenance activities covered by the proposed rule (see the proposed 50.65(b)), and so clearly were in no way intended as a surrogate for a process-oriented rule. However, monitoring is the focus of the final rule. The significant shifts in the focus of the rule and in the role of monitoring in the rule deserved public comment.

The notice of the proposed rule invite responses to questions on monitoring, but the questions were confined largely to the issue of what specific measures might be used to assess the effectiveness of a maintenance program (see 53 FR 47825). Not addressed in the notice were certain matters which are crucial to the final rule. These include, for example, the final rule's requirement to monitor "against licensee-established goals" which are "commensurate with safety". Also, § 50.65(b) of the final rule defines the structures, systems, and components (SSCs) to be included in the scope of maintenance monitoring programs. This definition is both similar to and different from the definition of SSCs important to license renewal in part 54, a final rule which the Commission affirmed along with the final rule on maintenance. Public comment might have addressed whether the differences between the definitions of SSCs in these two maintenance-related rules are justified or will present interpretation and implementation problems.

If I were convinced that a rule was needed to produce positive results, I could support the majority's rule as a proposed rule, provided that I could see how the staff would implement the rule through the development of regulatory guides and inspection modules, and provided that the public was given an opportunity to comment before promulgation of a final rule. But I am not convinced that a rule is needed to produce positive results. The staff has shown that we're seeing substantial positive results of the industry's maintenance program initiatives, and the staff's findings have been verified in my discussions with Regional staff and Resident Inspectors. Therefore, I have concluded that the Commission should not change its direction now and that there is no need to promulgate a maintenance regulation which could be counterproductive to further

maintenance program development and innovation. I fear that licensees will halt further development of their maintenance initiatives to await the development of the regulatory guidance to implement the rule, and that licensees will refrain from participating in future safety initiatives because they will interpret this Commission action as a significant retreat from its goals of achieving a stable regulatory environment. The development of an industry maintenance program standard, the industry's commitment to self-assessment against that standard, INPO's evaluation of maintenance progress against the objectives of the standard, NRC inspection programs which would concentrate on effective results, and the NRC's existing enforcement authority are adequate to ensure proper maintenance without a new rule.

I would stress, however, the importance of the Commission's continuing to monitor the industry's progress in this area. A policy statement would be a suitable approach for continuing the Commission's necessary emphasis on maintenance, and at the same time allowing for continuing improvement in maintenance through flexibility, diversity and innovation in the industry's programs.

Finding of No Significant Environmental Impact: Availability

The Commission has determined that, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required.

Since this action is directed toward maintaining the level of maintenance effectiveness of existing plant SSCs to minimize the likelihood of failures and events caused by the lack of effective maintenance and does not require any modification of the plant, it will not adversely affect the quality of the human environment.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW., Lower Level, Washington, DC.

Single copies of the environmental assessment and finding of no significant impact are available from Robert Riggs, Office of Nuclear Regulatory Research, Telephone: (301) 492-3732, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The information requirements will be submitted by the NRC to the Office of Management and Budget (OMB) for review and approval

of the information requirements before they will become effective. Notice of NRC submission of the information collection requirements to OMB, and issuance of the required OMB approval, will be published by the NRC in the **Federal Register**.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L St., NW., Washington, DC. Single copies of the analysis may be obtained from Robert Riggs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3732.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this regulation does not have a significant economic impact on a substantial number of small entities. This regulation affects licensees that own and operate nuclear utilization facilities licensed under sections 103 and 104 of the Atomic Energy Act of 1954, as amended. These licensees do not fall within the definition of small business set forth in section 3 of the Small Business Act, 15 U.S.C. 632, or within the Small Business Size Standards set forth in 13 CFR part 121.

Backfit Analysis

Pursuant to 10 CFR 50.109(a)(2), the Commission has prepared the following backfit analysis for the maintenance rule. The Commission has determined, on the basis of this analysis, that backfitting of the requirements in the maintenance rule will provide a substantial increase in the level of protection of public health and safety beyond that currently provided by the Commission's regulations, and that the costs of implementing the rule are justified in view of this increased protection.

The maintenance rule requires licensees to monitor the effectiveness of maintenance activities for certain structures, systems and components based upon licensee-established goals for performance or condition, and take corrective action where necessary (the requirements of the maintenance rule are set forth in greater detail in the discussion below which addresses the nine factors of 10 CFR 50.109(c)).

It is the Commission's judgement that maintenance, and in particular the goal-

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setting, monitoring and corrective action activities required by the maintenance rule, provide a substantial increase in the safety of nuclear power plant operation. This judgement is based on the direct impact of maintenance on the reliability and operability of nuclear power plant safety systems, and its effect on the other plant structures, systems and components that are important to the protection of the public health and safety and common defense and security.

The Commission's judgement that effective maintenance is an important contributor to safety is confirmed by studies of maintenance practices for domestic nuclear power plants, LERs, composite data from the Commission's Systematic Assessment of Licensee Performance (SALP), and the Commission's inspections at domestic nuclear power plants, as well as studies of maintenance practices at foreign nuclear power plants, the military, and the aerospace industry. The Commission first began focusing on maintenance as a result of its observation that plant performance, as reflected in such indicators as the number of unanticipated scrams, was not improving in the early 1980s. The Commission had expected that as newly licensed power plants gained operating experience and took advantage of lessons learned and other information distributed throughout the industry, problems in plant operation would gradually decrease to a relatively low level. To understand why industry performance was not improving as expected, the Commission performed an assessment of maintenance at domestic nuclear power plants in NUREG-1212, "Status of Maintenance in the Nuclear Power Industry." The study found that in 1985, maintenance safety problems were evident to varying degrees across the U.S. nuclear industry. Wide variations were found in maintenance practices and effectiveness, and a significant proportion of operational problems was found to be attributable to improper or inadequate maintenance. This finding was confirmed by an industry study of maintenance conducted about the same time. This industry study, which was performed by NUMARC Working Group 4, was discussed by the Working Group Chairman during the July 1988 Public Workshop on the Maintenance Rulemaking (NUREG/CP-0099, pp. 1.21-1.31). The industry study found that 38% of the root causes of 650 significant events examined were maintenance related.

To obtain a broader perspective on maintenance, the Commission performed a survey and assessment of maintenance practices in other countries and industries to identify varying approaches to maintenance and to determine if there was any linkage between safety and effective maintenance. Specifically, the aim of the study (NUREG-1333) was to:

- Review various regulatory approaches and determine their applicability to the maintenance rulemaking, and
- Determine foreign and domestic maintenance practices that contribute significantly to effective maintenance.

The study covered Japanese, French, and German (FRG) nuclear maintenance regulations and practices; the Federal Aviation Administration's regulatory approach to the maintenance of U.S. commercial aircraft; and the maintenance programs of the U.S. Navy and Air Force. The results of the study were used in formulating the proposed rule. These studies confirm the Commission's view that good maintenance is correlated with high reliability and minimization of plant transients, and therefore with nuclear power reactor safety.

An additional concern of the Commission is the need to assure effective maintenance at nuclear power reactors throughout the terms of their operating licenses (and any renewed operating licenses). While the current performance of the nuclear power industry in the area of maintenance is acceptable and improving in the aggregate, the NRC Staff's Maintenance Team Inspections indicate that there are still common weaknesses in discrete areas of maintenance at nuclear power plants. Thus, while the Commission acknowledges the increased emphasis by licensees on maintenance and significant improvement in performance of maintenance programs in the aggregate, additional attention is warranted. Moreover, in the absence of a rule, there is no assurance that licensees would not relax their commitment to effective maintenance practices in the future. In this regard, the Commission notes that no licensee has made a formal docketed commitment to implement the Institute for Nuclear Power Operations (INPO) performance objectives and criteria on maintenance (INPO 90-008). By adopting a maintenance rule now, the Commission will have a regulatory basis for preventing licensee "backsliding" in the area of maintenance.

The absence of Commission maintenance requirements covering a

broad scope of structures, systems and components also represents a safety concern because of the potential adverse effect on the ability of the Commission to take timely and effective regulatory action against licensees with poor maintenance practices. It is true that there are a number of existing Commission requirements that are directly or indirectly relevant to maintenance, including 10 CFR 50.34(a)(3)(i); 50.34(a)(7); 50.34(b)(6) (i), (ii), (iii) and (iv); 50.34(b)(9); 50.34(f)(1) (i), (ii), and (iii); 50.34(g); 50.34a(c); 50.36(a); 50.36(c) (2), (3), (5) and (7); 50.36a(a)(1); 50.49(b); 50.55a(g); part 50, appendix A, Criteria 1, 13, 18, 21, 32, 36, 37, 40, 43, 45, 46, 52, 53; part 50, appendix B. However, these requirements do not apply uniformly to all "safety-related" structures, systems and components, and only occasionally apply to structures, systems and components which could adversely affect the functioning of safety-related structures, systems and components. Any attempt on the part of the NRC to take regulatory action against a licensee with inadequate or poorly-implemented maintenance must be pursued on an individualized, case-by-case consideration of the adequacy of that licensee's maintenance practices and their effect on safety. This regulatory approach is costly in terms of agency resources. It also risks the possibility that the NRC will be unable to take timely enforcement action in the event of a finding of inadequate licensee performance in maintenance. By contrast, timely regulatory action could easily be taken if a licensee were found not to be implementing specific actions required by a rule which addresses maintenance. In sum, the Commission concludes that substantial safety benefits are to be achieved from adopting the final maintenance rule.

The Commission also concludes that the costs of implementing the maintenance rule at all nuclear power plants are justified in view of the safety benefits identified above. A regulatory analysis has been prepared to assist the Commission in determining the benefits and costs of implementing the maintenance rule through a quantitative approach. However, the quantitative estimates in the regulatory analysis have proved to contain varying degrees of uncertainty. Depending upon the specific assumptions used in the analysis, a broad range of values is possible for the estimated risk reduction attributable to the maintenance rule (the uncertainties and their effect on the overall risk reduction and value/impact ratios are discussed in greater detail in

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the regulatory analysis). Because of these uncertainties, the Commission has considered qualitative safety considerations and benefits. Thus, the regulatory analysis' quantitative estimates comprise a component of, but are not the primary factor with respect to the Commission's conclusions on the safety benefits and costs attributable to the final maintenance rule.

The regulatory analysis estimates that implementation of the final maintenance rule could result in a point estimate of 52,000 person-rem's avoided, with an upper bound of 72,000 and a lower bound of 7,300 person-rem's. The net costs associated with implementation of the maintenance rule are estimated to entail a point estimate of 44 million dollars, with an upper bound of 2100 million dollars in cost savings and a lower bound of 1500 million dollars. The resulting value/impact ratio is a point estimate of 1200 person-rem's/million dollars.

Furthermore, the regulatory analysis for the maintenance rule also contains some conservatism which the Commission believes underestimates the cost-effectiveness of the final maintenance rule. In the regulatory analysis, it was assumed that the core-damage frequency and forced outage downtime reductions associated with the results-oriented rule would be the same as those for a process-oriented rule. However, the Commission believes that the results-oriented approach, by focusing to a greater extent on equipment performance, would be more likely to achieve additional reductions in core damage frequency and forced outage downtime. The regulatory analysis also assumed that licensees under the final results-oriented rule would incur most of the costs of implementing programmatic elements similar in scope to those contained in the 1988 proposed maintenance rule in addition to the costs of implementing the results-oriented elements which were drawn from the proposed maintenance rule and incorporated into the final rule. The Commission projects that because the results-oriented rule is not a prescriptive programmatic rule, licensees will achieve some cost savings because they will have flexibility in determining the manner in which to improve the programmatic elements of their maintenance programs. Accordingly, the Commission projects that the costs for the performance-based final maintenance rule will be somewhat smaller than that assumed in the regulatory analysis.

In view of the safety benefits discussed above, the Commission judges

that the costs of implementing the maintenance rule are justified.

The Commission recognizes that regulatory action in the area of maintenance should not be overly prescriptive, but rather be carefully directed to ensuring that unnecessary activities are not required, in view of the large degree of uncertainty in quantifying the costs and benefits of the maintenance rule. Accordingly, the final maintenance rule is carefully tailored to eliminate prescriptive programmatic, procedural and organizational requirements. Rather, the final maintenance rule represents a results-oriented approach to assuring that maintenance is effectively conducted at nuclear power reactors. The licensee is responsible for establishing goals for structure, system and component performance or conditions, and the licensee is free to determine the monitoring method, the need for corrective action, and the nature of that action. Furthermore, the maintenance rule contains a provision (§ 50.65(a)(2)) whereby licensees may forego monitoring. The Commission believes that the final maintenance rule provides the necessary flexibility for licensees to tailor their maintenance programs to their specific plant design and configuration, organizational structure, and personnel, thereby permitting compliance with the maintenance rule in the most cost-effective manner. The Commission is confident that the regulatory goal of maintaining safety has been achieved in the most reasonable and cost-efficient manner and is consistent with the public interest.

For the reasons set forth above, the Commission concludes that, the maintenance rule will result in a level of safety beyond that currently provided by the Commission's regulations and that is a substantial increase in the overall protection of the public health and safety, and that the net costs of the rule are justified in view of this increased level of safety.

The nine factors listed in 10 CFR 50.109(c) are discussed below.

1. Statement of the specific objectives that the backfit is designed to achieve.

The purpose of the maintenance rule is to maintain the effectiveness of maintenance at operating nuclear power reactors, thereby maintaining the level of safety at operating nuclear power reactors.

2. General description of the activity required by the licensee or applicant in order to complete the backfit.

Under § 50.65(a)(1) of the maintenance rule, licensees will be required to: (i)

Establish goals for the performance or condition of certain structures, systems and components to assure that they will meet their intended function, (ii) monitor these structures, systems and components to determine whether the licensee-established goals have been met, and (iii) take appropriate corrective action if the goals are not met. These goals are to be established by taking into account industry-wide operating experience. Monitoring is not required, however, where the licensee demonstrates that preventive maintenance is sufficient to assure that the structures, systems and components will remain capable of performing their intended functions. See § 50.65(a)(2). Licensees will be required to evaluate the effectiveness of their goal-setting, monitoring and corrective action activities on at least an annual basis, taking into account industry-wide operating experience, and adjust their programs where necessary to ensure that failure prevention is balanced against unavailability of structures, systems and components. See § 50.65(a)(3). In addition, when performing monitoring and preventive maintenance activities, an assessment of the total plant equipment out-of-service should be taken into account to determine the overall effect on performance of safety functions. See § 50.65(a)(3). The structures, systems and components which are subject to the goal-setting, monitoring, and corrective action requirements of the rule are those which are safety-related, and certain non-safety related systems, structures and components as defined in § 50.65(b).

3. Potential change in the risk to the public from the accidental offsite release of radioactive material.

According to the Regulatory Analysis for the maintenance rule, a point estimate of the potential risk reduction to the public is approximately 52,000 person-rem, with an upper bound of 72,000 person-rem and a lower bound of 7,300 person-rem. The bases of these projections are provided in the discussion in the Regulatory Analysis. However, as suggested by the range between the upper and lower bounds of risk reduction to the public, the estimates possess a certain relatively high degree of uncertainty. One factor contributing to this uncertainty, and which tends to suggest that the values for the results-oriented final rule are conservative, is that the core damage reduction frequency (CDF) and forced outage downtime reductions associated with the results-oriented rule are assumed to be the same as the process-

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oriented rule. However, it is believed that the results-oriented rule, by focusing on equipment performance, would be more likely to achieve additional reductions in CDF and forced outage downtime.

4. Potential impact on radiological exposure of facility employees.

The goal-setting, monitoring, and availability evaluation requirements of the maintenance rule are not likely to result in any significant change, either positive or negative, in occupational exposures. Implementation of corrective actions, as required by § 50.65(a)(1) of the maintenance rule can affect collective occupational exposures both positively and negatively. Increases in maintenance activity due to expanded preventive maintenance or more aggressive corrective maintenance (to reduce backlogs, for example) will tend to increase exposure, while productivity increases and reductions in the amount of rework will tend to reduce exposures. The net effect of these positive and negative trends is believed to be beneficial but small compared to the other costs and benefits of improved maintenance. Because of the uncertainty in this projection and the relatively small magnitude of the reduced exposures, the cost-benefit analysis of the Regulatory Analysis does not account for any changes in occupational exposures.

5. Installation and continuing costs associated with backfit, including the cost of facility downtime or the cost of construction delay.

The Regulatory Analysis for the maintenance rule discusses the costs to the industry and the NRC associated with the maintenance rule. The maintenance rule does not require any change in the design or construction of any nuclear power plant. Nor does the rule apply to activities associated with the planning, design, and installation of plant modifications. Therefore, there will be no installation, downtime, or construction costs associated with the rule.

Rather, the maintenance rule will require licensees to establish goals for the performance or condition of certain structures, systems and components, monitor the performance or condition of those structures, systems and components, and implement corrective action if the licensee-established goals are not met. It also requires an annual evaluation of monitoring, goal-establishment and corrective action activities to take into account industry-wide operating experience and to make adjustments where necessary to balance failure reduction against structure, system, and component unavailability.

For 110 operating reactors, the estimated net cost associated with implementation of this rule is \$44 million. This estimate breaks down as follows:

Industry cost element	Millions of 1990 dollars
Implementation and operating	1050
Power replacement due to increased availability.....	(998)
Onsite cleanup and power replacement....	(9)
Total industry cost.....	44

The above cost figures are point estimates with a relatively large degree of uncertainty. The cost estimates in parentheses represent cost savings.

6. The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements.

As discussed above, the maintenance rule does not require any design modifications. Therefore, safety impacts attributable to changes in plant design are not assumed to result from the maintenance rule. With regard to changes in operational complexity, maintenance is often considered a part of operations. The maintenance rule requires licensees to establish goals for the performance or condition of certain structures, systems and components, monitor the performance or condition of those structures, systems and components, and implement corrective action if the licensee-established goals are not met. It also requires an annual evaluation of monitoring, goal-establishment and corrective action activities. In addition, in performing monitoring and maintenance activities, the overall effect of equipment out-of-service on the performance of safety functions must be assessed. These maintenance activities should provide a significant enhancement in safety by contributing to reduced operational complexity as a result of fewer maintenance reworks, fewer unplanned transients, and higher reliability of safety-significant SSCs, thus reducing the need for operator actions in response to events. Thus, operational complexity is not likely to be adversely affected.

There are a number of existing Commission requirements directly or indirectly relevant to maintenance, including §§ 50.34(a)(3)(i); 50.34(a)(7); 50.34(b)(6) (i), (ii), (iii) and (iv); 50.34(b)(9); 50.34(f)(1) (i), (ii), and (iii); 50.34(g); 50.34a(c); 50.36(a); 50.36(c)(2), (3), (5) and (7); 50.36a(a)(1); 50.49(b);

50.55a(g); part 50, appendix A, criteria 1, 13, 18, 21, 32, 36, 37, 40, 43, 45, 46, 52, 53; part 50, appendix B. Licensees must continue to comply with these requirements. However, 10 CFR 50.65 should provide added assurance that these requirements will be complied with. No duplication of requirements is intended.

7. The estimated resource burden on the NRC associated with the backfit and the availability of such resources.

The estimated resource burden to the NRC associated with the maintenance rule can be divided into two elements: (a) Development of a regulatory guide on maintenance effectiveness monitoring (\$800,000); and (b) inspection and enforcement to ensure compliance with the rule (assumed to be negligible over and above existing inspection efforts.)

With regard to enforcement, the maintenance rule does not require licensees to submit their maintenance program to the NRC for review and approval, and no agency resources have been included in the cost estimates for this activity. NRC does not expect to allocate any additional resources for inspections as a result of this rule.

8. The potential impact of difference in facility type, design, or age on the relevancy and practicality of the backfit.

The maintenance rule establishes generic requirements that are applicable to all types of facilities and designs regardless of their age. These requirements (and therefore the cost of complying with these requirements) are essentially the same regardless of the type or design of the facility.

9. Whether the backfit is interim or final and, if interim, the justification for imposing the backfit on an interim basis.

The maintenance rule is a final requirement. Licensees will have up to five years following publication of the final rule in the *Federal Register* to be in compliance with the requirements of the rule.

List of Subjects in 10 CFR Part 50

Administrative practice and procedure, Antitrust, Classified information, Fire prevention, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reporting and recordkeeping requirements.

In consideration of the foregoing, the Nuclear Regulatory Commission amends part 50 of title 10 of the Code of Federal Regulations as set forth.

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56 FR 36081

Published 7/31/91

Effective 10/29/91

Criteria and Procedures for the Reporting of Defects and Conditions of Construction Permits

See Part 21 Statements of Consideration

56 FR 40178

Published 8/13/91

Effective 9/12/91

10 CFR Part 50

RIN 3150 — AD32

Emergency Response Data System

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to require licensees of all operating nuclear power facilities except Big Rock Point to participate in the Emergency Response Data System (ERDS) program. This action requires licensees to submit to the NRC timely and accurate data on a limited set of parameters whose values indicate the condition of the plant during a declaration of an alert or higher emergency classification. This action will ensure that all licensees establish a definite schedule for implementation of the ERDS program.

EFFECTIVE DATE: September 12, 1991.

ADDRESSES: Copies of all NRC documents are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street NW., Lower Level of the Gelman Building, Washington, DC. Copies of NUREG documents may be purchased from the Superintendent of Documents, U.S. Government Printing Office by calling (202) 275-2060 or by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

FOR FURTHER INFORMATION CONTACT: M.L. Au, P.E., Office of Nuclear Regulatory Research, Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 492-3749.

SUPPLEMENTARY INFORMATION:

Background

On October 9, 1990 (55 FR 41095) the Commission published a proposed rule in the *Federal Register* that would require licensees to participate in the Emergency Response Data System (ERDS) Program and to set a schedule

for its implementation. ERDS is a direct electronic data link between computer data systems used by licensees of operating reactors and the NRC Operations Center (NRCOC) during the declaration of an alert or higher emergency classification. The ERDS supplements the voice transmission of information over the currently installed Emergency Notification System (ENS), and is activated by a licensee when an alert or higher emergency occurs at a licensed nuclear power facility.

This rule applies to all licensed nuclear power reactor facilities, except Big Rock Point and those that are permanently or indefinitely shut down. However, units shut down for maintenance, or authorized for fuel loading only, or low power operations, are required to report under ERDS. Big Rock Point is exempt because configuration of the facility does not make available as transmittable data a sufficient number of parameters for effective participation in the ERDS program.

The objective of the final rule is to ensure timely and effective implementation of ERDS to provide NRC increased assurance that a reliable and effective communication system that will allow the NRC to monitor critical parameters during an emergency is in place at operating power reactors.

Many of the elements of the rule are currently implemented under the ERDS voluntary program in which over half of the licensed units have volunteered to participate. The ERDS program is not expected to require any advancements in the state of the art, and the configuration of most power reactors is such that the relevant parameter values are available as transmittable data. Therefore, there should be no cause for delay in timely implementation of this rule.

Public Comments

Interested parties were invited to submit comments on the proposed rule. There were 113 comments made by 31 commenters on the proposed rule: Two from interested individuals, one from a citizens' group, one from a former Senior Reactor Operator and Emergency Director at a utility, one from the Nuclear Management and Resources Council (NUMARC), one from the Nuclear Utility Backfitting and Reform Group (NUBARG), 20 from power reactor licensees, one from a non-power reactor licensee, and four from State authorities. Many of the letters contained comments that were similar in nature. These comments were grouped and addressed as one issue. The NRC identified 21 separate issues that cover the significant points raised by commenters. Public comments received on the proposed rule were docketed and may be examined at the Commission's

Public Document Room located at 2120 L Street NW. (Lower Level), Washington, DC. Upon consideration of the comments received, the Nuclear Regulatory Commission has adopted the proposed regulations, with certain modifications as set forth below.

Analysis of Public Comments

1. *Comment.* The ERDS data would be subject to distortion by terrorists or computer hackers which could cause the NRC to respond improperly in their recommendations to the licensee, Federal agencies, and State and local governments. If the ERDS were hardened, or essential data elements were verified by voice communication, this potential problem would be eliminated.

Response. It is highly unlikely that a computer hacker would be able to locate ERDS transmissions in the NRC's communications network because of the limited access to this system. Also, the communication protocol incorporated for ERDS transmission would make the data unintelligible without knowledge of the specific site link configuration. Error detection/correction has been incorporated into the transmission protocol which would, in all probability, detect any alteration in the data. And finally, as stated in NUREG-1394, "Emergency Response Data System (ERDS) Implementation," and in this final rule, the NRC will continue the requirement for the licensee to maintain voice communication with the NRC during emergencies. Any data indicating rapid unrealistic changes or unexpected conditions would be immediately suspect and subject to verbal corroboration. Therefore, the NRC does not believe the probability for intentional data distortion is sufficiently large to justify resources for further countermeasures.

2. *Comment.* There is inadequate justification that implementing the ERDS would substantially increase the overall protection of the public health and safety. This contention was made by nine commenters, in addition to the seven commenters who endorsed the consolidated comments from NUMARC and NUBARG without further elaboration. The commenters stated that if there was a substantial increase this should be quantitatively demonstrable. They also stated that the utility is solely responsible for the protection of the public health. They argued that because this rule does not improve the manner in which the emergency director makes decisions, the claim of "unquantifiable but significant increase" in the protection of the public is invalid. One commenter stated the ERDS is an improvement to a system that has been deemed "adequate," and therefore is not necessary.

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Response. Many have argued, as the commenters have, that the NRC Backfit Rule (10 CFR 50.109) requires quantitative evidence that new NRC requirements will result in a substantial increase in the overall protection of the public health and safety or the common defense and security. The NRC does not agree with this interpretation and believes that the safety enhancement justification for a backfit can also be met on the basis of qualitative considerations. In such cases, the NRC believes that the evidence that a substantial increase in overall protection would occur must be clearly defensible and meaningful. The NRC has used this test in its assessment of the ERDS requirements.

The Commission has previously determined that there exists both a regulatory and statutory basis for having emergency planning as a critical element in the protection of public health and safety. In its July 17, 1979, Advance Notice of Rulemaking, the following statement is made: "The Nuclear Regulatory Commission, in discharging its statutory responsibilities to protect the public health and safety, has given its primary attention to aspects of the reactor site and the facility design. In this regard, emergency planning, including evacuation planning, has been conceived of as a measure that adds to the level of public protection * * *"

The NRC, in its mandated role to protect public health and safety, has a responsibility in the event of a reactor accident to monitor the actions of the licensee, who has the primary continuing responsibility for limiting the consequences of the accident. The NRC also has an important role in assuring the flow of accurate information to affected offsite officials and the public regarding the status of the emergency and, as requested or needed, giving advisory support or assistance in diagnosing the situation, isolating critical problems and determining what remedial actions are appropriate. The NRC must be capable of providing to State and local authorities, and to other Federal agencies, an independent assessment of protective actions recommended by the licensee.

Given the regulatory and statutory basis, and given the importance of emergency planning and response in the defense-in-depth context, when an accident has occurred, the NRC believes that a significant increase in its ability to perform its role would constitute a substantial increase to the overall protection of the public health and safety.

Since the principal effect of ERDS will be a marked improvement in the

availability, timeliness, and reliability of key information about what is taking place at the reactor during an accident, particularly during the critical early hours before the NRC Site Team arrives, it is the judgment of the NRC that the implementation of ERDS will provide a significant improvement in the NRC's ability to accurately and promptly assess the situation at the site.

In emergency drills conducted by the NRC and power reactor licensees, the information on the status of the reactor is typically 15-30 minutes old by the time it is received at the NRC Operations Center when transmitted via the existing Emergency Notification System (ENS). Moreover, inaccuracies and errors have been found in that information which in some cases has led to confusion and misunderstanding of the situation.

In drills which have employed a prototype of the ERDS, there has been profound improvement in the availability, timeliness, and reliability of the information transmitted. The actual experience of the NRC using the existing ENS alone contrasted with drills where both ENS and a prototype ERDS were used is the basis for its conclusion, that ERDS will provide significant improvements in the NRC's ability to understand what is taking place during an emergency, and thereby more effectively perform its role of monitoring and advising the licensee. More importantly, the improvement in assessment performance significantly improved the NRC's ability to provide appropriate recommendations and advice to the State and local officials who are required to make the decisions regarding the offsite protective actions which are necessary to protect the public.

Because the decision made by the State and local authorities with regard to offsite protective actions could significantly affect the public health consequences of a reactor accident, it is the judgment of the NRC that a significant improvement in the NRC's ability to provide the right recommendation at the right time provides a substantial improvement in the overall protection to the public. An effective emergency response capability in the event of a reactor accident is an essential element of the defense-in-depth approach to protection of the public health and safety. The NRC's role during an emergency is part of that capability. Because the ERDS will provide a significant improvement in the NRC's ability to perform that role in an emergency, the proposed ERDS improvements are therefore justified,

and the costs of implementing those improvements are modest.

3. Comment. One commenter believed that the limited group of reactor parameters monitored through ERDS would be inadequate to provide a sound basis for NRC recommendations and therefore requested modifications to ERDS. One commenter urged the NRC to consider a continuous monitoring system, e.g., the Nuclear Data Link considered by the Commission following the Three Mile Island accident. Other commenters stated that the ERDS design uses cumbersome hardware and software, that NRC's communication hardware should be able to accept data from a multiple unit plant through one modem, and allow state-of-the-art hardware.

Response. Although the ERDS data does not portray every detail of a nuclear power reactor in an emergency situation, the Commission believes it does provide the data required by the NRC to perform its role during an emergency. The ERDS parameter list was selected based on the information the NRC Technical Teams need to perform their emergency response functions. Moreover, the set of ERDS data will not be the only input to the NRC. The Emergency Notification System (ENS), a voice communication system, will still be available to transmit data and any other relevant information that is not available through ERDS. In combination, the NRC will receive the necessary information to develop timely and appropriate evaluations of the event and to develop the necessary support actions to ensure protection to public health and safety.

The ERDS is designed to transfer needed reactor data from a nuclear power plant only during emergencies. It is not a system to constantly monitor any licensee. The concept of constant monitoring, such as the Nuclear Data Link, was considered after the Three Mile Island accident in 1979. But after much evaluation and deliberation, Congress did not approve the concept for funding.

The current protocol is already in use at several reactors under the volunteer program and is in the process of being implemented at other facilities. The NRC is not requiring additional redesign and retest costs on voluntary licensees who already have an acceptable system in place or have submitted an acceptable implementation plan.

The ERDS was designed to use commercially available (off-the-shelf) computers which could effectively handle the data requirements, establishing a single link with each unit.

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To group several units into a single link would result in a data base size incompatible with the ERDS configuration. The ERDS design has been frozen in order to maintain configuration control and standardization in implementing the ERDS volunteer program.

4. *Comment.* Submittal of an ERDS implementation plan should not be required of licensees that have implemented ERDS under the voluntary program. Similarly, licensees that have submitted the information required by the voluntary program along with a proposed implementation schedule should also be exempt from the schedule and system requirements contained in 10 CFR part 50, paragraphs VI.1, VI.2 and VI.4 of appendix E of the proposed rule.

Response. The NRC agrees that it is unnecessary for licensees that have implemented the ERDS in an acceptable manner to submit an implementation plan. The final rule (appendix E to part 50, section VI, paragraphs 4.c and d) has been modified so that licensees who have submitted all information consistent with the timetable set in paragraph 4.b of appendix E to part 50, section VI, are not required to submit an implementation plan.

5. *Comment.* (a) Nineteen of the commenters, including three that endorsed the NUMARC comments, were concerned that implementing the ERDS would increase the operators' labor burden because the NRC, as well as State or local government agencies receiving the ERDS data, would not be staffed by personnel with sufficient system specific knowledge to understand the data. This would result in extensive inquiries to the licensees to explain the data, thereby distracting the operating staff from their primary functions of accident response and emergency management.

(b) Some of these commenters urged the NRC to limit the data provided to States and local government and direct them regarding the use of the ERDS information to preclude the improper use or release of the data.

(c) Other commenters stated that with the availability of ERDS parametric reactor data, the NRC would modify its oversight role into one of more active participation in event management, a function, the commenters claimed, is solely the responsibility of the licensee.

Response. (a) The NRC does not believe that ERDS will impose an additional burden on licensees during an emergency. Rather, the reduction in the potential for miscommunication and misunderstanding afforded by ERDS should enhance the licensee's efficient

use of its resources in dealing with an emergency. The NRC acknowledges that ERDS will impose small additional burdens on licensee resources during periods of non-emergency and typically involving non-operator personnel. These impacts are discussed in the regulatory analysis that accompanies this rule and include incremental licensee person-hours for development of the ERDS program and necessary software, periodic testing, and the preparation of configuration control reports. These incremental costs are judged commensurate with the enhanced protection of the public attributable to ERDS. Concern over the capability of NRC staff to understand the ERDS data are unfounded. The NRC Operations Center staff are experienced professionals with extensive knowledge of reactors, sufficient to allow them to use the data provided by the ERDS to follow the course of the emergency, chart and analyze trends, and support appropriate recommendations relating to the health and safety of the public. Further, the NRC is aware that while not all States have the technical knowledge required to interpret raw ERDS data, some have developed significant expertise in responding to emergencies at nuclear power plants. The NRC believes that since the States are responsible for protective actions to ensure the health and safety of their citizens, they should have available sufficient data upon which to base decisions.

(b) The ERDS link will be established with a State government through a Memorandum of Understanding (MOU) with the NRC. The proper use, control, and dissemination of the ERDS data is one of the subjects addressed by the MOU. Under the MOU, the NRC will provide a liaison to the State at the NRCOC for ERDS data interpretation if such help is requested.

(c) The implementation of ERDS will not alter the respective responsibilities of the utilities and the NRC with respect to emergency management. The utility will retain primary responsibility for emergency management activities at the site locations. The NRC will continue to monitor, inform, and upon request, advise licensees and other local, State and Federal authorities who are responsible for the safety of their citizens, as well as to provide timely advice to the licensees as needed.

6. *Comment.* States may require the licensee to pay for equipment required to receive and process the ERDS data. Furthermore, providing ERDS data to the States and local governments would increase NRC costs beyond that estimated in the Backfit Analysis.

Response. The NRC has no control or authority over the State governments regarding their funding of ERDS receiving equipment. Each individual State government should determine its equipment and data requirements. However, through a Memorandum of Understanding (MOU) between the State and the NRC regarding the ERDS link, the ERDS data can be made available to a State. One of the functions of the NRC is to provide appropriate support to the States during a nuclear power plant emergency. This responsibility exists independent of the ERDS, and in the staff's view, the ERDS interface between the NRC and the States should not result in additional costs to the NRC.

7. *Comment.* Implementing the ERDS seems to imply some general concern that the NRC neither trusts its abilities nor those of the licensees to respond correctly to emergencies using current practices.

Response. ERDS is an enhancement of existing procedures that provides a superior method of assembling and transmitting to the NRC near real time data from a licensee during an alert or higher emergency classification. Accurate and timely data assists the NRC in conducting informed analyses of the plant condition, and facilitates NRC consultation with State or local governments regarding action to ensure protection of public health and safety.

8. *Comment.* Will the time in the header of the ERDS data packet be some standard time such as GMT, EST, etc.?

Response. The time from the licensee's plant computer will be used with ERDS data. Included in each licensee's ERDS implementation plan will be the time standards used in their computers. This practice will ensure that the particular licensee and all monitors of ERDS data relating to a particular emergency or test are using the same time. There is no requirement for all licensees to adhere to a common standard time.

9. *Comment.* Non-power reactors should be explicitly exempt from the ERDS requirements.

Response. Since 10 CFR 50.72 of the regulations applies only to nuclear power reactors, it is not necessary to explicitly exempt non-power reactors in the rule.

10. *Comment.* Licensees are requested by Generic Letter 89-89 to transmit a significant number of data sheets to the NRC during emergencies. With the implementation of ERDS, this should be relieved to allow better use of licensee resources to support ERDS.

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Response. The information cited is an Information Notice (IN), and as such, it requires no action on the part of the licensee. The form contained in IN 89-89 is a copy of the work sheet used by NRC Headquarters Operations Center officers in recording routine Event Reports over the ENS. IN 89-89 was provided as information to licensees to aid in structuring their normal event report.

11. *Comment.* The NRC should provide the software required for ERDS communications to the utilities.

Response. The NRC will develop software which may be used in a utility provided personal computer (PC) interface for ERDS. The NRC will provide software and source code for a program that will perform ERDS communications protocol and data transmission functions.

12. *Comment.* There were several concerns regarding the configuration control of ERDS hardware and software. Five commenters stated the requirement to notify the NRC within 30 days following changes in individual parameters is overly prescriptive, and they proposed extending the maximum allowable notification period to 90 days, annually, or during Final Safety Analysis Report (FSAR) updates. Two commenters believed the time estimated to perform the configuration control functions was low by a factor of two or three, and therefore the ERDS would be more costly to the utilities than estimated. One commenter stated there should be specific guidance provided for the configuration control requirements of the utility/ERDS interface; and two were concerned that if the NRC changes its format the licensees are automatically required to change their transmission of data. They recommended that the data should be limited to an initial format with no later changes.

Response. In establishing the current reporting requirement for changes in the ERDS Data Point Library, the staff balanced the time needed by the licensees for its design change control and review processes against the staff's need to know based on safety considerations. The staff views the 30 days as reasonable for the licensees to prepare such a report, and given that such changes can influence the NRC's interpretation of ERDS data does not view any further delay as warranted.

For some licensees, plant to plant variation could result in a greater labor burden associated with configuration control tasks than the 5-person days per reactor year used in the regulatory analysis. However, that value represents an average that, considering the entire

nuclear power industry, appears substantially correct. There is an economy of scale for those utilities that can combine submissions from multiple reactor units that reduce the industry average.

The basic guidance information for configuration control of the ERDS is contained in NUREG-1394. Based on the experience of the utilities that have implemented ERDS voluntarily, the configuration control requirements appear to be appropriate.

The proposed rule would require the licensee to change its data transmission if the NRC changes its format, and the staff agrees that this is an unreasonable requirement on the licensees. Therefore the final rule has been revised to require all data transmission to conform to the initial format. As the ERDS matures, or as technical advances increase capabilities, there may be some modifications. However, any such changes will be coordinated with the licensees.

13. *Comment.* The ERDS rulemaking should clearly state that the ERDS is available to the States; and that all future State and local government requests for on-line data should be made through the NRC. Furthermore, the licensees should have access to the same screens as those available to the NRC.

Response. It is not within the authority of the Commission to specify to the States what data they may or may not receive. However, the NRC does recommend that States desiring an emergency data link to nuclear power plants within their jurisdiction use an ERDS connection from the NRC Operations Center. A Memorandum of Understanding with the NRC will provide the State with ERDS data. A provision allowing States to receive ERDS data should not be part of the rule since there is no NRC requirement imposed upon licensees to establish a data link with a State. The concept of providing each licensee with the same work stations as the NRC was considered. However, it was not deemed cost beneficial to expend in excess of \$900,000 for the sole purpose of sending back to the licensees that data which they originally sent to the NRC. Any licensee desiring to do so may establish their own work station based on NRC design.

14. *Comment.* The requirement for the reactor parametric data to be transmitted to the NRC Operations Center at time intervals of not less than 15 seconds or more than 60 seconds is too prescriptive and may eliminate the use of some existing computer systems currently supporting the licensee's

Technical Support Center (TSC)/Emergency Operating Facility (EOF), etc. One commenter suggested that data update frequency should be plant specific. Others argued that the wording in the proposed rule puts the licensee in jeopardy of non-compliance in the event of system or telecommunications line failure, and that considering the conditions, the proper descriptor for the data is "near real time" instead of "real time."

Response. Originally the desired update frequency for ERDS data was 15 seconds, but to minimize the use and impact on the central processing unit (CPU), the minimum frequency was reduced by a factor of four, i.e., to at least every 60 seconds. Based upon the experience of those manning the NRCOC, the staff believes that less frequent data collection would diminish the NRC monitors' ability to adequately follow the course of the emergency. Furthermore, allowing update frequencies to range between 15 seconds and 60 seconds should provide sufficient latitude to allow most licensees to use their existing computer systems. Exceptions to this requirement will be considered on a case by case basis by the NRC.

Consistent with the NRC's enforcement policy, licensees are not cited for matters beyond their control, such as equipment failures that are not avoidable by reasonable licensee quality assurance measures or management controls. Nonetheless, in the wording of the final rule, the term "near real time" has been used to describe the ERDS data.

15. *Comment.* The requirement to activate the ERDS at the time the NRC is notified of the declaration of an alert or higher emergency classification should be relaxed because it places a heavy labor burden on the plant operators at this critical time. Several commenters suggested a delay of one hour in order to allow actuation from the Technical Support Center, thus removing the burden from control room personnel. Four commenters stated the ERDS should not be operated from an on-site computer, and two suggested the rule should allow the ERDS to be activated by computer operations personnel or a software switch. One commenter stated the licensee should be the only entity to activate or deactivate the ERDS for a given plant.

Response. There is no requirement for the ERDS to be activated from the control room or by control room personnel. The use of computer operations personnel or a software switch is acceptable to activate the

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ERDS. The only requirement is to initiate ERDS data transmission as soon as possible but not later than one hour after declaring an emergency class of alert, site area emergency, or general emergency. This change is reflected in the final rule. The specific methods selected to achieve this requirement should be fully described in each licensee's ERDS implementation plan. The notification requirement is valid in order for NRC to fulfill its mandated role to monitor the licensee during an emergency. A delay of one hour or more could deprive the NRC of vital information necessary to perform its advisory and monitoring role. The licensee is currently required in 10 CFR 50.72 to have a shift communicator maintain continuous contact with the NRC Operations Center. This request is not being changed, and this person could be responsible for initiating the ERDS link.

Similarly, the requirement to use an on-site computer does not mean this equipment must be located in the control room. Any on-site location, such as the Technical Support Center or a computer facility, which is capable of meeting the requirement for notification is an acceptable location. However, off-site computers, e.g., at some central location used to service more than one plant site could be prone to additional commercial link vulnerability. This could potentially decrease the ERDS availability and reliability beyond acceptable limits.

The ERDS link will be activated or deactivated by the licensee to transmit the ERDS data to the NRC Operations Center via the NRC-provided telephone lines. In the event that NRC perceives the need to disconnect a plant from the NRC Operations Center to allow another plant onto the system, for example, terminating the transmission of exercise data to allow a unit with a real emergency to access the system, this capability must be available to the NRC.

16. Comment. The 18 month ERDS implementation schedule does not provide adequate flexibility for all utilities to install the system. Adhering to that schedule will cause serious operational and cost impacts to some utilities because the system requires extensive hardware modifications.

Response. The voluntary program demonstrated that an implementation period of 18 months is generally adequate. However, the NRC realizes there are plant to plant variations which, in certain cases, may require more extensive and time consuming modifications. Utilities that experience exceptional difficulties in meeting the 18

month implementation schedule should request an extension from the NRC. Extension requests will be reviewed on a case-by-case basis. Extensions will not be granted in the absence of reasonable and good faith efforts to meet the schedule.

17. Comment. The requirement in the proposed rule contained in appendix E to part 50, section VI.2, should be clarified to indicate that the licensee will provide data from each unit via an output port on the appropriate data system and necessary software to assemble the data to be transmitted.

Response. The staff agrees with this clarification. This section of the final rule will be modified appropriately.

18. Comment. Quarterly testing of the ERDS is too frequent. Testing on a semi-annual or periodic but unspecified schedule should be sufficient. One commenter noted that the rule does not address reporting requirements for system failures during testing. Also for consistency between the discussion section and the rule, the following statement regarding the use of ERDS during emergency training exercises should be added to 10 CFR 50.72(a)(4) of the rule. Although there is no requirement, the ERDS may also be activated by the licensee during emergency drills or exercises if the licensee's computer system has the capability to transmit the data.

Response. Quarterly testing during the initial year or 18 months of the ERDS program is necessary for both the licensees and the NRC monitors to gain experience and confidence with the system, as well as prove the availability and reliability of the system. An established schedule allows both the NRC and licensees to plan and allocate time and resources for testing rather than trying to accommodate testing on an unregimented basis. After a period of approximately one year of demonstrated system performance, i.e., proper functioning during quarterly testing, the test frequency may be relaxed to semi-annually.

There are no explicit reporting requirements for failures during testing because the quarterly testing will be conducted with NRC. If there are failures during these tests, the NRC, because of its participation in the tests, will be aware of them. It is unlikely there will be any system testing of which the NRC is unaware, e.g., with State or local governments, since the State links will most probably be through the NRC Operations Center. The recommended additional statement regarding use of ERDS during emergency training exercises has been included in the final rule.

19. Comment. Three commenters stated that this rule should impose no new isolation requirements, and suggested that references should be deleted to a potential requirement for additional isolation requirements.

Response. The reference to the potential need for isolation devices is not a new requirement. It is intended merely to serve to reinforce requirements as a design control mechanism in 10 CFR 50.55a and adds emphasis for adequate protection against spurious electrical signals. More recently constructed nuclear power reactors have adequate isolation of their computer interfaces, but in some older reactors it is conceivable the computer assembling the ERDS data may not be fully buffered, and as such, could require appropriate isolation devices. The statement alerts the licensees to the potential need for additional isolation devices.

20. Comment. There should be more flexibility in acceptable quality indicators (tags) for the ERDS data, thus allowing greater use of existing plant methodologies. Requiring the utilities to use the quality tags prescribed by the NRC would force major software changes and added costs for some licensees.

Response. Using the data quality indicators prescribed by the NRC should necessitate, at the most, only very minor licensee software changes. A simple translation matrix that converts the quality tags used by the licensee to the form to be used by the NRC Operations Center is sufficient. This can be applied to the ERDS data prior to transmission.

There is no requirement for the utilities to change the quality tags used at their facility. However, if each utility transmits ERDS data to the NRC Operations Center using their own quality tags, variation from licensee to licensee could cause confusion to the NRC monitors, thereby necessitating additional telephonic consultation with the licensee.

21. Comment. Four commenters stated that when ERDS is implemented the requirement for full time manning of the Emergency Notification System (ENS) should be relaxed. Without this relaxation the affected utility will not be able to redirect its efforts as claimed.

Response. It is not the intent to replace the ENS with ERDS; rather, ERDS is a supplemental system specialized in automatic collection and transmission in near real time of a selected set of parametric reactor data required by the NRC in its emergency monitoring role. Although implementing ERDS will diminish the current ENS

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burden, not all functions of the ENS will be subsumed into the ERDS. Therefore, telephone contact will still be required via the ENS. Nevertheless, the effort required by the licensee's personnel to gather the data for periodic relay to the NRC will be reduced, thus permitting their use of personnel in other emergency functions.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(3)(iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final regulation.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget under approval number 3150-0011.

Public reporting burden for this collection of information is estimated to average 115 hours per response the first year and 38 hours per response thereafter, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019 (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The NRC has prepared a regulatory analysis for the final rulemaking on this subject. The analysis examined the costs and benefits of the alternatives considered by the NRC. The NRC requested public comments on the preliminary regulatory analysis. Comments received were considered, but no changes to the regulatory analysis are considered necessary. Therefore, the preliminary regulatory analysis is adopted as the final regulatory analysis without change.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)),

the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This final rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for this rule. The Commission concluded that the rule will provide a substantial increase in the overall protection of the public health and safety by ensuring far more accurate and timely flow of data for the NRC to fulfill its role during an alert or higher emergency. The direct and indirect costs estimated for the implementation of this rule are justified in view of this increased protection. Further, the implementation and maintenance requirements of the rule will have no effect on occupational radiological exposure. The backfit analysis on which this determination is based is as follows:

Item 1: Statement of the specific objective that the backfit is designed to achieve.

Response: The objective of this rulemaking is the timely and effective implementation of ERDS so as to provide increased assurance that a reliable and effective communications system, that will allow the NRC to monitor available critical parameters during an emergency, is in place. The availability of accurate, near real-time data depicting what is taking place at a reactor facility during an alert or higher emergency will improve the NRC's understanding of the event as it is happening, and thereby better enable the NRC to perform its role of (i) providing State and local authorities recommendations and advice on offsite action that they may need to take to protect their citizenry; (ii) supporting the licensee's efforts to manage the accident by providing technical analysis and logistic support; (iii) keeping other Federal agencies and entities informed of the status of the incident; and (iv) keeping the media informed of the NRC's knowledge of the status of the incident.

Item 2: General description of the activity that would be required of the licensee or applicant in order to complete the backfit.

Response: All licensees or applicants would be required to install an NRC-

supplied communication link, provide the necessary hardware from the in-plant computer to interface with the NRC-supplied communication link, provide support for periodic testing of the ERDS, and report any configuration changes to the licensee's ERDS-related hardware and software. Initially, the ERDS will be tested quarterly, unless otherwise determined by NRC based on demonstrated system performance.

Item 3: Potential change in the risk to the public from the accidental offsite release of radioactive material.

Response: The principal effect of ERDS will be a marked improvement in the availability, timeliness, and reliability of key information about what is taking place at the reactor during an accident, particularly during the critical early hours before the NRC Site Team arrives. Hence, ERDS will provide significant improvements in the NRC's ability to understand what is taking place during an emergency, and thereby more effectively perform its role of monitoring and advising the licensee. More importantly, the improvement in assessment performance will improve the NRC's ability to provide appropriate recommendations and advice to the State and local officials who are required to make the decisions regarding offsite protective actions which are necessary to protect the public.

Because the decisions made by the State and local authorities with regard to offsite protective actions could so significantly affect the public health consequences of a reactor accident, it is the judgment of the NRC that a significant improvement in the NRC's ability to provide the right recommendation at the right time provides a substantial improvement in the overall protection to the public. Because the ERDS will provide that significant improvement in the NRC's ability to provide the right recommendation at the right time, the proposed ERDS requirements are justified.

Item 4: Potential impact on radiological exposure of facility employees.

Response: The implementation of the proposed ERDS rule would have no effect on routine occupational radiological exposure and would not result in increased radiological exposure of facility employees.

Item 5: Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay.

Response: The cost impact of the rule was estimated to be approximately \$153,000 for one nuclear power reactor

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(one unit). This figure, expressed in 1990 dollars, represents the incremental worth of installing and operating ERDS for 30 years using a 5 percent discount rate. The overall industry cost of implementing the rule for 118 nuclear power reactor units was estimated at approximately \$18 million. No downtime costs were considered in the cost impact estimates because the installation and operation of the ERDS should have no impact on the operation of a nuclear power plant.

Item 6: The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements.

Response: The ERDS rule should have little or no impact on the operational complexity of the nuclear power reactor units since the required modifications to the hardware and software are minor. The redirection in the labor burden provided by the automatic collection and transmission of selected reactor data would increase the efficiency and effectiveness of nuclear power plant operating personnel during an emergency. This rule is closely associated with Generic Letter 89-15 and complements the ENS that exists at every nuclear power reactor.

Item 7: The estimated resource burden on the NRC associated with the backfit and availability of such resources.

Response: The impact on the NRC resulting from the implementation of the ERDS rule is anticipated to be a one-time cost of about \$200,000 for the current population of operational/licensed nuclear reactor units. This figure provides for initial reviews of licensees' implementation plan submittals. After implementation, the NRC cost is estimated to be approximately \$4.4 million for 118 nuclear power reactor units. This figure represents the costs for periodic testing and configuration control expressed as the present worth in 1990 dollars and uses a 5 percent discount rate over 30 years.

Item 8: The potential impact of the differences in facility type, design, or age on the relevancy and practicality of the backfit.

Response: The rule is independent of the facility's type, design, or age. There are considerable variations in the instrumentation systems of the nuclear power plants, and the estimated cost impacts were based on an average value for current nuclear power plants to implement the ERDS. There will be no differences, however, in potential impacts between the various facilities on a yearly basis. The rule does not require that licensees monitor more

parameters than are presently monitored at each facility.

Item 9: Whether the proposed backfit is interim or final and, if interim, the justification for imposing the proposed backfit on an interim basis.

Response: Implementation of the ERDS in accordance with the final rule will require that all licensees develop and submit an ERDS implementation plan to the NRC within 75 days of the publication of the final rule in the **Federal Register**. The implementation plan should provide a schedule which identifies the earliest possible time frame for ERDS implementation by the licensee as well as proposed alternate implementation dates. The NRC will establish an industry-wide ERDS implementation schedule which will take into account such factors as planned computer modifications and scheduled outages. The ERDS must be implemented within 18 months of the publication of the final rule in the **Federal Register**. Licensees that have submitted the required information under the voluntary implementation program will not be required to resubmit this information. However, they will be required to meet the implementation schedule of 18 months after the effective date of the final rule or before initial escalation to full power, whichever comes later. Licensees with currently operational ERDS interfaces approved under the voluntary ERDS implementation program will not be required to submit another implementation plan and will be considered to have met the requirements under this rule.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 50.

56 FR 40664
Published 8/15/91
Effective 9/16/91

*Revisions to Procedures to
Issue Orders; Deliberate Misconduct
by Unlicensed Persons*

See Part 2 Statements of Consideration

56 FR 61352
Published 12/3/91
Effective 6/20/91

*Standards for Protection Against
Radiation; Correction*

See Part 20 Statements of
Consideration

56 FR 64943
Published 12/13/91
Effective 1/13/92

Nuclear Power Plant License Renewal

See Part 54 Statements of
Consideration

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 30383
Published 7/9/92
Effective 8/10/92

10 CFR Part 50
RIN 3150-AD89

Decommissioning Funding for Prematurely Shut Down Power Reactors

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations on the timing of the collection of funds for decommissioning for those nuclear power reactors that have shut down before the expected ends of their operating lives. These amendments require that the NRC evaluate decommissioning funding plans for power reactors that shut down

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prematurely on a case-by-case basis. The NRC's evaluation would take into account the specific safety and financial situations at each nuclear power plant.

EFFECTIVE DATE: August 10, 1992.

FOR FURTHER INFORMATION CONTACT: Robert Wood, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-1255.

SUPPLEMENTARY INFORMATION:

Background

On June 27, 1988 (53 FR 24018), the NRC published a final rule that amended 10 CFR parts 30, 40, 50, 51, 70, and 72. This final rule established several acceptable methods by which power reactor licensees may provide assurance that they will have sufficient funds to decommission their plants by the time the plants are permanently shut down (53 FR 24043). In considering this final rule, the Commission acknowledged that, in certain instances, reactors might be permanently shut down before completing the full term of their operating lives. However, because the Commission determined that such instances would be infrequent, it did not explicitly include remedies for this situation in the final rule.

In establishing the June 27, 1988, final rule, the Commission recognized that power reactor licensees generally have access to significant amounts of financial capital and are closely regulated. Therefore, the Commission allowed these licensees the option of accumulating decommissioning funds over the projected operating life of the facility rather than requiring that these funds be available or guaranteed prior to operation, or at some time before the end of the projected operating life of the facility. The Commission recognized the risk that, if some reactors did not operate for their entire operating lives, those licensees might have insufficient decommissioning funds at the time of permanent shutdown.

After the NRC published the June 27, 1988, final rule, four power reactor facilities shut down prematurely: The Fort St. Vrain Nuclear Generating Station, the Yankee Rowe Nuclear Power Station, the Rancho Seco Nuclear Generating Station, and the Shoreham Nuclear Power Station. The NRC staff sought the Commission's guidance on the appropriate period for collecting funds to compensate for any shortfall of decommissioning funds for plants such as these that shut down prematurely. The Commission elected to determine the appropriate collection period for any decommissioning funding shortfall for prematurely shut down power reactors

on a case-by-case basis. As part of its decision, the Commission directed the NRC staff to prepare a rulemaking that would codify this case-by-case approach. A proposed rule implementing this approach was published in the Federal Register on August 21, 1991 (56 FR 41493).

Analysis of and Response to Comments

The NRC received 17 comments in response to the proposed rule. Eleven comments were from NRC-licensed electric utilities; two from utility trade groups; one from a utility counsel; two from bond rating/investment advisory companies; and one from a public interest group.

Except for the comment from the public interest group, all comments supported that part of the proposed rule that would allow the period of funds accumulation for a prematurely shut down reactor to be determined on a case-by-case basis. However, most utilities and their representatives opposed the guidance in the preamble to the proposed rule that would use a bond rating of "A" as a criterion for determining the future solvency of and thus the extent of the funding period for a licensee with a prematurely shut down power reactor.

1. Comment: The use of bond ratings.

The commenters offered a variety of reasons why they considered bond ratings, particularly at the "A" level, to be inappropriate for judging a licensee's ability to pay for decommissioning for a prematurely shut down reactor. These reasons included the following:

(1) Bond ratings are too restrictive and do not allow for variations in licensee situations as contemplated by the case-by-case approach.

(2) Bond rating may not be an accurate indicator of a licensee's future ability to pay for decommissioning.

(3) Not all licensees issue debt that is rated. In the case of power plants with several owners, owners will likely have different ratings.

(4) Bond ratings would likely decline by virtue of a premature reactor shutdown, thus precipitating further financial problems and further downratings.

(5) Differences in ratings by different services or for different classes of debt issues were not addressed.

(6) Reliance on bond ratings may result in unsound business decisions to avoid accelerated fund accumulation or may discourage use of the SAFSTOR decommissioning option.

(7) A "BBB" rating, or equivalent, is still considered investment grade and is used as a criterion in Regulatory Guide

1.159¹ and Appendix A to 10 CFR part 30.

(8) A one-year trigger period is too short and may be disruptive.

(9) Possible adverse tax consequences may accrue if accelerated payments are required.

Response: The NRC continues to believe that bond ratings can serve as one of several criteria to estimate the ability of a licensee to pay future decommissioning costs. The NRC did not intend that this rule set a mandatory requirement that a minimum "A" rating must be met before the NRC would approve funding into a shut down reactor's safe storage period. Rather, one reason the "A" rating criterion was proposed was to serve as a screening test of whether additional financial data was required to determine whether the licensee should be allowed to fund decommissioning into a storage period. If a licensee met this criterion, the licensee would not have to prepare and submit additional documentation of its financial situation to be allowed to fund decommissioning into a storage period. A benefit of the proposed screening test was a potential saving of licensee and NRC resources to develop and review the additional financial data.

With respect to the level of rating (i.e., "A" vs "BBB" or equivalent), the preamble to the proposed rule presented a rating of "A" as a threshold below which a licensee would be required, if other criteria were not met, to accelerate payment of any decommissioning funding shortfall. The staff chose an "A" rating because a downrating from "A" to "BBB" would allow a licensee to secure funds or meet other criteria while its rating was still investment grade. To that extent, an "A" rating is not inconsistent with the use of "BBB" ratings in Regulatory Guide 1.159 and appendix A to 10 CFR part 30. In Regulatory Guide 1.159, a "BBB" bond rating was used as a minimum suggested standard for a mixed portfolio of investments in a decommissioning trust. Because of investment diversification, a "BBB" investment standard represents a

¹ Regulatory Guide 1.159 is available for inspection and copying for a fee at the Commission's Public Document Room 2120 L Street, N.W., (Lower Level), Washington, D.C. Copies of issued guides may be purchased from the Government Printing Office at the current GPO price. Information on current GPO prices may be obtained by contacting the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, D.C. 20013-2171. Issued guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5825 Port Royal Road, Springfield, VA 22161.

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relatively low level of financial risk. Similarly, appendix A of part 30 used a "BBB" rating as a minimum for a parent company of a licensee to guarantee decommissioning costs. Because a parent company is a separate legal entity from its subsidiary, the NRC would potentially have access to two sources of funds (the licensee and its parent) thus reducing the risk of decommissioning funding shortfalls. For this reason, the NRC disagrees that an "A" bond rating standard is too stringent as a screening test.

For these reasons, the NRC will continue to use the "A" bond rating as a screening test for determining the decommissioning funding period for prematurely shut down power reactors. If a power reactor licensee cannot pass the initial screening test, or if it has passed the screening test but subsequently loses its "A" bond rating, this licensee could still be allowed to fund into the storage period by meeting other criteria as described below.

These criteria include:

- (1) A licensee's financial history including its past funding of reactor safety expenditures;
- (2) The local rate regulatory environment and other relevant State laws including public utility commission (PUC) commitments;
- (3) The number of other generating plants, both nuclear and non-nuclear, in its system. This is another way of measuring the relative impact of decommissioning costs on a particular licensee's finances; and
- (4) Other factors that a licensee can demonstrate as being relevant.

The NRC wishes to clarify that it assumes that most licensees with "BBB" bond ratings would still be able to obtain NRC approval of decommissioning funding into the safe storage period for a prematurely shut down reactor. This is because most licensees will be able to successfully meet the other criteria described above even if they are unable to pass the "A" bond rating screening test. Recent exemptions issued to two prematurely shut down plants (Rancho Seco and Shoreham) indicate that bond ratings are only one of several factors that the NRC will use to determine whether a licensee has demonstrated reasonable assurance of its ability to pay decommissioning costs. Finally, this discussion on the use of bond ratings is intended as non-binding guidance only; this final rule includes no such detailed criteria.

2. Comment: It is not necessary to require that all funds should be available in external funds or guaranteed by the time final dismantlement activities commence.

A few commenters disagreed with the NRC's statement that all funds are required to be available or guaranteed in external funds by the time final dismantlement activities commence. Some commenters hypothesized scenarios in which relatively small funding shortfalls may be covered in rates already approved by a licensee's PUC or the Federal Energy Regulatory Commission (FERC) prior to actual collection. In this situation, funds, although not strictly available at the time final dismantlement activities commence, would have a high degree of assurance of being obtained by the time the licensee needed to complete the dismantlement activities. Another commenter suggested that the NRC's requirement of full funding prior to the start of final dismantlement operations is inconsistent with a case-by-case approach. This commenter recommends that licensees be required to provide assurance that funds are available to complete specific dismantlement activities, rather than the entire dismantlement process.

Response: The NRC disagrees with recommendations that the NRC should abandon its general policy of requiring all funds needed for decommissioning be available prior to the start of final dismantlement. As described in the proposed rule (56 FR 41493), the June 27, 1988, final rule clearly requires funds at the time of permanent end of operations. Section 50.75(e)(1) defines the three methods of financial assurance acceptable for power reactor licensees. Two of the methods, prepayment and surety or insurance, provide all funds by the time of permanent shutdown. The third acceptable method, an external sinking fund, is defined as "a fund established and maintained by setting funds aside periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected."

This requirement was imposed to avoid a situation where lack of funds could delay and degrade the decommissioning process to the detriment of public health and safety. Although the dismantlement process can be completed in discrete stages, the potential unavailability of funds at a later stage may conceivably affect the dismantlement process at an earlier

stage by creating incentives to "cut corners." Thus, this requirement was not altered in the proposed rule on funding for plants that shut down prematurely and will remain in the final rule.

3. Comment: Accelerated funding when there is a risk of premature shutdown.

One commenter asked the NRC to allow accelerated funding in cases where there is a risk of premature shutdown. This commenter specifically referred to its request for FERC to accelerate funding over a shorter period than the fill remaining operating life so that adequate funds would be available at the time of permanent shutdown. The commenter also indicated that its request was denied by FERC.

Response: The NRC strongly supports any effort by its licensees to accelerate funding, especially when a serious possibility of premature shutdown is anticipated. The NRC further believes that existing regulations (i.e., 10 CFR 50.75(e)) would allow accelerated funding and that, in appropriate circumstances, accelerated funding could be ordered if necessary of desirable for safety. In any case, the NRC would defer to FERC or the appropriate PUC for the appropriate rate treatment of accelerated funding.

4. Comment: Amending 10 CFR 50.82 to clarify issuance of possession-only licenses and other procedural aspects of decommissioning.

One commenter recommended that § 50.82 be amended to indicate the timing and procedures for decommissioning. The commenter requests that the NRC specify when it will issue a possession-only license or other license amendments to permits scaling back site operations.

Response: The NRC is evaluating its regulations concerning decommissioning and is considering issuing proposed amendments to clarify its procedures in the areas suggested by the commenter. To expedite this rule, however, the NRC will consider the timing of possession-only licenses and other license amendment procedures as part of a separate rulemaking action.

5. Comment: The case-by-case approach "fails to provide sufficient protection to the public's health and safety."

A commenter argues that many plants will shut down prematurely in the future and safe storage is neither risk free nor cheap. Thus, adequate funds for safe storage must be assured, in addition to funds for actual decommissioning. Therefore, plants must have adequate funding available for the time of

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shutdown and not be allowed to fund into the safe storage period. Further, this commenter asserts that "A" bond ratings are inadequate because "in many instances, utility (and other) bonds have gone from investment grade status to junk or default status in one step." In the event of a precipitating incident such as an accident, "there is no likelihood at all that the derating process will be gradual * * *." This commenter concludes by stating that the NRC "should determine how to insure, in each and every case, that adequate funds are available."

Response: This commenter makes several assertions to support the commenter's opposition to funding during a safe storage period. These assertions, however, are not supported by facts. It is not true that most bond ratings, especially for electric utilities, move quickly through several categories of ratings. The process is almost always gradual and, therefore, would almost always give the NRC time to take steps to assure the adequacy of fundings during a storage period. In addition, this commenter also ignores NRC's requirement that its power reactor licensees carry accident recovery insurance of at least \$1.06 billion (10 CFR 50.54(w)) to provide a source of funds for accident cleanup and decontamination. This requirement reduces the likelihood that premature decommissioning resulting from an accident would be particularly financially stressful.

More importantly, the NRC would, as stated, evaluate each instance of premature decommissioning on a case-by-case basis. The criteria discussed above provides the NRC with a variety of measures to assure the adequacy of funding. The case-by-case approach that is being adopted in this rule allows the NRC to consider the participation financial situation for each licensee that shuts down its power reactor before the expected end of operation life. In spite of the commenter's assertions, the Commission does not expect this to be a frequent occurrence. When it does occur, in most situations the majority of decommissioning funds will have been collected during the operating life of the shut down reactor. Most licensees currently have substantial amounts collected and would, at the least, be able to fund activities necessary to place a shut down reactor into safe storage. Whatever funding shortfall remains can be collected or guaranteed in a time frame and through funding mechanisms commensurate with a licensee's financial situation. As that

financial situation changes, the licensee, under NRC monitoring, would alter funding methods accordingly.

For the reasons presented in the discussion of issues raised, the NRC is issuing this final rule as proposed.

Finding of No Significant Environmental Impact: Availability

This final rule clarifies decommissioning funding arrangements for those licensees whose power reactors are shut down prematurely. This action is required so that the Commission may evaluate on a case-by-case basis the unique financial situation that could confront those licensees. The Commission would continue its requirements for assurance of decommissioning costs but could alter the timing of funds collection according to a licensee's individual financial situation. The Commission believes that if utility licensees were required to have all funds for decommissioning by the time of permanent shutdown as required by the existing rule, some utilities could be unnecessarily financially stressed without significantly increasing the protection of the public health and safety and of the environment.

Neither this action nor the alternative of maintaining the existing rule would significantly affect the environment. Although changes in the timing of collection of funds for decommissioning prematurely shut down power reactors may affect the financial arrangements of licensees and may have economic and social consequences, they would not alter the effect on the environment of the licensed activities considered in the final rule published on June 27, 1988 (53 FR 24018) as analyzed in the Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586, August 1988).^{*} The alternative to this action would not significantly affect the environment. Therefore, the Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this final rule will not be a major Federal action significantly affecting the quality of the human environment, and therefore an environmental impact statement is not required. No other

^{*} Copies of NUREG-0586 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, D.C. 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW., (Lower Level), Washington, DC.

agencies or persons were contacted for this action, and no other documents related to the environmental impact of this action exist. The foregoing constitutes the environmental assessment and finding of no significant impact for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*) Existing requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Regulatory Analysis

On June 27, 1988 (53 FR 24018), the NRC published in the Federal Register a final rule amending 10 CFR parts 30, 40, 50, 51, 70 and 72 regarding general requirements for decommissioning nuclear facilities. In that rule, the Commission provided the option that power reactor licensees may collect funds for decommissioning over the projected operating life of the facility but required that all funds needed for decommissioning be accumulated by the time of permanent shutdown. Under the existing rule, power reactor licensees that shut down prematurely would not have the remaining term of the operating license to accumulate decommissioning funds and could be unduly burdened financially if required to raise all remaining decommissioning funds shortly after shutdown. Consequently, the NRC will evaluate the schedule for collecting decommissioning funds for prematurely shut down facilities on a case-by-case basis. A case-by-case approach allows the NRC to evaluate the particular financial circumstances of each affected licensee while continuing to ensure that the public health and safety and the environment are adequately protected. This final rule would generally reduce financial costs for those licensees allowed to extend the collection period of decommissioning funds.

This final rule would not create substantial costs for other licensees. The rule will not significantly affect state and local governments and geographical regions, or the environment, or create substantial costs to the NRC or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final

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rule will not have a significant impact upon a substantial number of small entities. The rule will potentially affect licensees of approximately 118 nuclear power reactors. Nuclear power plant licensees do not fall within the definition of small businesses as defined in Section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administrator (13 CFR part 121), or the Commission's Size Standards (50 FR 50241; December 9, 1985).

Backfit Analysis

The NRC has determined that this final rule does not impose a backfit as defined in 10 CFR 50.109(a)(1). Therefore, a backfit analysis is not required for this rule.

List of Subjects in 10 CFR Part 50.

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 50.

SUMMARY: The Commission is amending its regulations to incorporate by reference the 1986 Addenda, 1987 Addenda, 1988 Addenda, and 1989 Edition of Section III, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), and the 1986 Addenda, 1987 Addenda, 1988 Addenda, and 1989 Edition of Section XI, Division 1, of the ASME Code. The final rule imposes an augmented examination of reactor vessel shell welds and separates the requirements for inservice testing from those for inservice inspection by placing the requirements for inservice testing in a separate paragraph. The ASME Code addenda and edition incorporated by reference provide updated rules for the construction of components of light-water-cooled nuclear power plants, and for the inservice inspection and inservice testing of those components. This final rule permits the use of improved methods for construction, inservice inspection, and inservice testing of nuclear power plant components; requires expedited implementation of the expanded reactor vessel shell weld examinations specified in the 1989 Edition of Section XI; and more clearly distinguishes in the regulations the requirements for inservice testing from those for inservice inspection.

EFFECTIVE DATE: September 8, 1992. The incorporation by reference of certain publications listed in the regulations is approved by the Office of the Director of the Office of the Federal Register as of September 8, 1992.

FOR FURTHER INFORMATION CONTACT: Mr. G.C. Millman, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3848.

SUPPLEMENTARY INFORMATION:

Background

On January 31, 1991 (56 FR 3796), the Nuclear Regulatory Commission published in the **Federal Register** a proposed amendment to its regulation, 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities," to update the reference to editions and addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). This proposed amendment would revise § 50.55a to incorporate by reference the 1986 Addenda, 1987 Addenda, 1988 Addenda, and 1989 Edition of Section III, Division 1, of the ASME Code, and the 1986 Addenda, 1987 Addenda, 1988 Addenda, and 1989 Edition of Section

57 FR 34666
Published 8/6/92
Effective 9/8/92

10 CFR Part 50

RIN 3150-AD05

Codes and Standards for Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

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XI, Division 1, of the ASME Code, with a specified modification. The modification would require implementation of certain requirements for containment isolation valve (CIV) testing that appear in Section XI Subsection IWV prior to the 1988 Addenda, but which do not appear in the later addenda. The amendment would impose an augmented examination of reactor vessel shell welds, and separate in the regulations the requirements for inservice testing from those for inservice inspection by placing the requirements for inservice testing in a separate paragraph.

Summary of Comments

Interested parties were invited to submit written comments for consideration in connection with the proposed amendment by April 16, 1991. Comments were received from 29 separate sources. These sources consisted of 23 utilities, one service organization representing four nuclear power plants, the Nuclear Management and Resources Council (NUMARC), one owners group (BWR Owners Group (BWROG)), one state entity (Illinois Department of Nuclear Safety (IDNS)), one public citizens group (Ohio Citizens for Responsible Energy (OCRE)), and one independent consultant.

The submitted comments generally addressed one of the following subject areas: (1) The incorporation by reference of the specified later addenda and edition of Section III, Division 1, and Section XI, Division 1, of the ASME Code into § 50.55a; (2) the endorsement of comments submitted by NUMARC; (3) the proposed modification to Section XI Subsection IWV rules for CIV testing; (4) the proposed augmented reactor vessel examination; (5) the separation of the rules for inservice inspection and inservice testing; (6) the existing scope of § 50.55a for pump and valve testing; and (7) the potential endorsement in § 50.55a of ASME/ANSI OM part 4 on snubbers.

Those who commented on the updating of existing references to Section III and Section XI of the ASME Code in § 50.55a generally noted their approval. One commentator, however, expressed significant concern with the new provision initially specified in the Section XI 1988 Addenda which expands the existing requirement to examine one circumferential and one longitudinal reactor vessel shell weld during the 2nd and subsequent inspection intervals to essentially 100 percent of all reactor vessel shell weld during those intervals. Volumetric examination of all reactor vessel shell welds during the first inspection interval has been a requirement in Section XI

since the 1975 Addenda. The commentator believes that the expanded examination is unnecessary and that examination efforts should focus on the beltline welds or welds that exceed a specified fluence level. The NRC agrees with the ASME action to expand the reactor vessel examination on the basis that the importance of the reactor vessel, and previous unexpected cracking of primary coolant pressure boundary components, requires that the expanded examinations be performed to ensure the integrity of the reactor vessel. The importance of reactor vessel integrity in protecting the public health and safety demands that periodic, comprehensive inservice examinations of the reactor vessel be made to ensure that structural degradation, if it occurs, does not go undetected. Although the beltline welds do receive the highest radiation, there is simply no assurance that service induced cracking would be limited to those welds. An examination once every ten years of essentially 100 percent of all reactor vessel shell welds is both reasonable and necessary.

The comments submitted by NUMARC relate to: (1) The proposed endorsement of a later edition and addenda of the ASME Code, which NUMARC considers to be a positive step; (2) the proposed modification to Section XI Subsection IWV (i.e., the reference to part 10 of ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987 (OM Part 10)), which NUMARC considers to be inappropriate and unnecessary on the basis that 10 CFR part 50, Appendix J testing is adequate; (3) the proposed augmented reactor vessel examination, which NUMARC recognizes to be important, but suggests that more flexibility be incorporated into the implementation provisions; and (4) the scope of § 50.55a which NUMARC believes should not be influenced by Generic Letter 89-04. Approximately one-half of the utility commentators specifically endorsed the comments by NUMARC. In general, comments from the other utilities were consistent with one or more of the comments from NUMARC. The comments from NUMARC are discussed below, along with comments from others on the same subject.

Most of the comments addressed, in part, the proposed modification to Section XI Subsection IWV rules for containment isolation valve testing. Utility comments supported the NUMARC comment, which expressed the belief that the current Appendix J containment leakage testing program already provides an adequate basis for assessing and controlling containment

leakage and that the modification could result in a valve having to be declared inoperable immediately, in spite of the fact that the total containment leakage may be substantially less than allowable. NUMARC suggested that, in lieu of reinstating requirements for specific valves, NRC recommend to the ASME Operations & Maintenance (O&M) Committee that it perform a comprehensive review of the testing requirements for containment isolation valves and acceptance standards for those tests. IDNS agreed with the NRC position that the requirements for leakage rate analysis and provisions for corrective action should be maintained, but believed that it would be less confusing for licensees if those requirements were incorporated into the existing requirements for Type C testing in Appendix J. OCRE strongly supported the action by NRC to modify the Section XI rules for CIV testing.

The NRC concern that resulted in the proposed modification to Section XI Subsection IWV stems from the findings of two reviews and a follow-on study of Appendix J leak test results. The overall findings show that valve leakage is the primary contributor to occurrences of containment unavailability and that such occurrences generally involve small, rather than large, leaks. Risk to the public from small leakage events is very low, but the NRC is concerned that eliminating the existing Section XI requirement to analyze leakage rates and to take corrective action in the event of abnormally high leakage rates for those CIVs that do not provide a reactor coolant system pressure isolation function could reduce the ability to detect degrading valves and, thereby, could permit an unacceptable reduction in the present safety margin associated with the leak tight integrity of those CIVs and, thereby, the containment.

It was specifically noted in the proposed rule that the NRC was interested in receiving comments on the discussed basis for and content of the proposed modification, and was particularly interested in receiving comments that would provide insight and justification, based upon plant experiences, relative to the need for revising or possibly eliminating the proposed modification. Many comments were received that express concern with the proposed modification. However, these comments, which generally state the opinion that Appendix J requirements are adequate and sufficient with regard to ensuring containment integrity, are of a qualitative nature and no specific plant

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data or operational experiences were provided or referenced that updated the results of the earlier studies. No additional substantive information was provided for the NRC to consider relative to the need for revising or possibly eliminating the proposed modification. It has not been demonstrated, by analysis of more recent and comprehensive containment leakage test data, that containment leakage integrity can be maintained at an acceptable level without continued implementation of the existing Appendix J valve leak rate test program in conjunction with the Section XI requirement for analysis of leak rates.

Consistent with the comment by NUMARC, the NRC staff discussed the basis for OM part 10 CIV testing requirements with representatives from the ASME O&M Committee. Based on these discussions and in concert with the O&M Committee organization, the O&M Committee has initiated action to (1) perform a comprehensive review of OM part 10 CIV testing requirements and acceptance standards and (2) develop a basis document that would provide, as a minimum, a documented basis for not including the requirements for analysis of leakage rates and corrective actions in OM part 10 for those CIVs that do not provide a reactor coolant system pressure isolation function. The NRC will reevaluate the need for the modification to Section XI Subsection IWV, following review of this basis document. It is anticipated that this will occur as part of a future rulemaking proceeding that will address the incorporation by reference of the ASME O&M Code into § 50.55a.

In the meantime, this final rule incorporates by reference the 1988 Addenda and 1989 Edition of Section XI, Division 1, with a specified modification for CIV testing that is provided in a new § 50.55a(b)(2)(vii). The modification substantially preserves the existing requirements for analysis of leakage rates and corrective actions that exist in Subsection IWV prior to the 1988 Addenda. Specifically, the modification requires that licensees implement the requirements of Paragraph 4.2.2.3(e), "Analysis of Leakage Rates," of part 10 and Paragraph 4.2.2.3(f), "Corrective Action," of part 10, in addition to the requirements of Paragraph 4.2.2.2 of part 10, for all Category A valves that are CIVs, regardless of whether or not they provide a reactor coolant system pressure isolation function. Because paragraph 4.2.2.3(e) of part 10 is specified in the modification rather than the existing IWV-3426, the existing Section XI requirement is somewhat

relaxed by permitting valve combinations rather than specific valves to be analyzed. This recognizes that, in the past, requests for relief have been granted where design constraints necessitate testing combinations of valves with permissible leak rate limits applied to valve groups. The specified modification does not require the present practice of trending NPS 6 and larger valves because that requirement has not been carried from IWV-3427(b) to OM part 10.

Section XI Subsection IWV (1988 Addenda and 1989 Edition), Subsection IWP (1988 Addenda and 1989 Edition), and Subsection IWF (1987 Addenda, 1988 Addenda, and 1989 Edition) reference ASME/ANSI OM part 10, ASME/ANSI OM part 6, and ASME/ANSI OM part 4, respectively. During preparation of this final rule, it was recognized that Table IWA-1600-1 in the applicable Section XI addenda and edition specifies a nonexistent revision for OM part 10 and part 6, and does not specifically identify the applicable revision for OM part 4. The Section XI Subcommittee on Inservice Inspection has taken action to correct the revision reference, which, for these standards, should be the ANSI/ASME OMa-1988 Addenda to the ASME/ANSI OM-1987 Edition. To ensure that licensees are aware of the correct revision reference to the OM standards, an additional modification, § 50.55a(b)(2)(viii), has been added to specify that the OMa-1988 Addenda is the applicable revision to the OM-1987 Edition for OM part 4, part 6, and part 10 when using the noted Section XI addenda and edition.

The NUMARC comment relative to the proposed augmented examination of the reactor vessel indicates an understanding of the NRC position on the need for this examination, but notes concern with the specifics of the proposed implementation. Specifically, NUMARC expresses concern that: (1) Better utilization of available inspection resources could be accomplished by limiting application of the augmented inspection program to the reactor vessel beltline shell welds, or by limiting implementation of the augmented examination to reactor vessel shell welds that exceed a specific neutron flux exposure (this comment differs from the one utility comment noted above relative to updating later edition and addenda of Section XI in that it only refers to the augmented examination); (2) tooling for the older Boiling Water Reactors (BWRs) may generally not be available in the time-frame needed; (3) only those reliefs which address the scope and extent of shell weld

examinations should be revoked, and they should be revoked on a plant specific basis; and (4) the NRC should state its willingness to accept requests for specific new exemptions, based on the availability of suitable equipment and technology at the time of the scheduled inspection and the appropriate technical justification.

Other comments on the augmented examination include those from: BWROG, which noted concern for those plants close to the end of the current interval that could not practically incorporate the augmented examination into the current interval and would have to perform that examination during the first period of the next interval (Note: The deferred augmented examination may be used as a substitute for the reactor vessel shell weld examination normally scheduled for the interval in which the deferred examination was performed (§ 50.55a(g)(6)(ii)(A)/3), therefore, the impact of deferring the augmented examination will be reduced); IDNS, which strongly supports the NRC position regarding the augmented examination of the reactor vessel; and OCRE, which also strongly supports the augmented examination and notes that the examination will not only provide an additional assurance of safety, but will aid in understanding aging degradation phenomena which will assist licensees that wish to pursue license renewal.

The NRC position with regard to the augmented examination of the reactor vessel, as previously stated in the Supplementary Information to the proposed rule, is that degradation of reactor vessel materials has become more of a concern recently, because: (1) Results from irradiation surveillance material tests show that certain reactor vessel materials undergo greater radiation damage than previously expected, (2) indications from operational data show that stress corrosion cracking of BWR reactor vessels is more probable than was thought several years ago, and (3) significant service induced cracking has occurred in large vessels (i.e., pressurizer, steam generators) designed and fabricated to the ASME Code. It is the judgment of the NRC that, because of new information and previous limited examinations of reactor vessels, there may exist a substantially greater potential for reactor vessel degradation, in all areas of the reactor vessel, than previously considered and that maintenance of the level of protection presumed by the regulations requires more than compliance to existing regulatory requirements. The NRC has

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determined that the augmented examination of reactor vessels will result in a substantial increase in the overall protection of the public health and safety, and that the costs of implementation are justified in view of the increased protection. The backfit analysis required by § 50.109, "Backfitting," is provided as part of the regulatory analysis that supports this final rule.

However, the NRC agrees with comments that additional flexibility and specificity will improve implementation of the augmented examination of reactor vessel examination. To this end, the augmented examination of reactor vessel shell welds specified in this final rule includes the following new provisions and clarifications: (1) The revocation of previously granted reliefs is limited to those reliefs that deal with the extent of volumetric examination of reactor vessel shell welds; (2) the augmented examination will be performed in accordance with the section XI edition and addenda applicable to the inspection interval in which the examination is actually performed; (3) "essentially 100%" as used in § 50.55a(g)(6)(ii)(A) means "more than 90 percent of the examination volume of each weld, where the reduction in examination volume is due to interference from another component, or part geometry;" (4) licensees that defer the augmented examination to the next interval are permitted to retain all existing approved reliefs for the current interval; (5) licensees with fewer than 40 months remaining in the inspection interval in effect when the rule becomes effective are permitted to extend the interval in accordance with the provisions of section XI (1989 Edition) IWA-2430(d); (6) licensees that are unable to satisfy completely the requirements for the augmented examination may request to perform alternate examinations in accordance with § 50.55a(g)(6)(ii)(A)(5). These items are addressed individually in the discussion below regarding provisions of the augmented reactor vessel shell weld examination.

Section 50.55a(g)(6)(ii) addresses augmented inservice inspection programs for those systems and components for which the Commission determines that added assurance of structural reliability is necessary. For that purpose, and consistent with the discussion in this final rule, § 50.55a(g)(6)(ii)(A) has been added to require expedited implementation of the reactor vessel shell weld examinations specified in the 1989 Edition of section XI, Division 1, in item B1.10, "Shell

Welds," of Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," in Table 2500-1 of subsection IWB, "Requirements for Class 1 Components of Light-Water Cooled Power Plants."

In order to ensure the applicability of the new augmented examination to all licensees, § 50.55a(g)(6)(ii)(A)(1) revokes all previously granted reliefs relating to the extent of volumetric examination of the reactor vessel shell welds that apply to examinations for the inservice inspection interval that is in effect when the rule becomes effective subject to a specified modification. Limiting the revocation of previously granted reliefs to those that deal with the extent of the volumetric examination permits the retention of those approved reliefs that deal with issues such as specification of calibration blocks. Licensees that choose to defer the augmented examination to the next interval in accordance with § 50.55a(g)(6)(ii)(A)(3) should note that paragraph (iv) of that section modifies the revocation of approved reliefs to permit retention of previously approved reliefs for the current interval when the augmented examination is deferred. This provision recognizes that plants that previously received relief from the section XI reactor vessel shell weld examination and satisfy the condition to defer the augmented examination may find it impractical to implement the section XI examination during the current inspection interval.

Section 50.55a(g)(6)(ii)(A)(2) requires all licensees to implement the specified augmented examination of reactor vessels during the inspection interval in effect when this rule becomes effective, subject to conditions specified in § 50.55a(g)(6)(ii)(A)(3) and (4). Section 50.55a(g)(6)(ii)(A)(2) specifically permits the use of the augmented examination, when not deferred, as a substitute for the reactor vessel shell weld examinations scheduled for the inspection interval in effect when the rule becomes effective, and specifies that, for the purpose of this rule, "essentially 100 percent" as used in Table IWB-2500-1 means "more than 90 percent of the examination volume of each weld, where the reduced examination volume is due to interference from another component, or part geometry." This is consistent with section XI Code Case N-460, which previously has been approved for use in Regulatory Guide 1.147. It is recognized that it may be necessary to implement a combination of internal and external diameter examinations to achieve "essentially 100%" examination volume

coverage for each weld. A clarification has been included in this section to note that the augmented examination may be used as a substitute for the reactor vessel shell weld examination in the interval in effect when the rule becomes effective when the augmented examination is not deferred. This is a reinforcement of § 50.55a(g)(6)(ii)(A)(3), as it appears in both the proposed and final rule, which specifies that the deferred examination may not be used as a substitute for the reactor vessel shell weld examination scheduled for implementation during the inservice inspection interval in effect when the rule becomes effective.

The NRC recognizes that plants with fewer than 40 months remaining in the inspection interval when this rule becomes effective may find it impractical to implement the augmented examination of the reactor vessel during that inspection interval. Therefore, § 50.55a(g)(6)(ii)(A)(3) permits plants with fewer than 40 months remaining in the inspection interval when this rule becomes effective to defer the augmented examination until the first period of the next inspection interval. However, this same paragraph specifically prohibits the use of the deferred augmented examination as a substitute for reactor vessel shell weld examinations scheduled for the inspection interval in effect when the rule becomes effective. The intent is to ensure that the examinations are deferred only when necessary and not to have the rule encourage a 40-month delay in reactor vessel shell weld examinations. Further, § 50.55a(g)(6)(ii)(A)(3) permits using the deferred examination, with a condition, as a substitute for reactor vessel shell weld examinations scheduled for the inspection interval in which the deferred examinations are performed. The condition is that subsequent reactor vessel shell weld examinations for successive inspection intervals be performed in the first period of the inspection interval. This condition is necessary to prevent a potential 160-month gap between reactor vessel shell weld examinations. This gap would occur if a plant used the deferred examination performed in the first period as a substitute for the scheduled examination and then deferred the examination for the next inspection interval to the end of that interval as permitted by section XI. In addition, this section specifies that licensees with fewer than 40 months remaining in the inservice inspection interval in effect when the rule becomes effective may extend that interval in accordance with

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the provisions of section XI (1989 Edition) IWA-2430(d) to permit implementation of the augmented examination during the current interval. It is not the intent of the NRC to permit licensees in the second period of an inspection interval to reduce the interval length for the purpose of "being within 40 months of the end of the interval" and, thereby, deferring the augmented examination to the first period of the subsequent interval.

Section 50.55a(g)(6)(ii)(A)(4) specifies that a licensee that has either completed or has scheduled an inspection of essentially 100 percent of the length of all Examination Category B-A shell welds during the inservice inspection interval in effect when the rule becomes effective does not have to implement the required augmented examination of the reactor vessel shell welds. Primarily, this paragraph is intended to permit licensees who are in the first inspection interval to use the essentially 100 percent reactor vessel shell weld examination required for that interval by section XI to satisfy the requirement for the augmented examination of the reactor vessel. The technical objective of the augmented examination will be accomplished under these conditions. These licensees will continue to apply the current requirements of § 50.55a(g)(4) until the next inspection interval when future examinations will be performed based on ASME section XI, 1989 Edition, or later Code edition and addenda specified in § 50.55a(b).

The augmented examination specified in § 50.55a(g)(6)(ii)(A) is not an ASME Code requirement. It is a requirement specifically developed and additionally imposed by the Commission. Therefore, except for the specific provisions in § 50.55a(g)(6)(ii)(A)(2) and (3) that permit using the augmented examination as a substitute for section XI required reactor vessel shell weld examinations, the closing out of an inservice inspection interval is not dependent on completion of the augmented examination. In the specific instance where the augmented examination is deferred to the first period of the next inspection interval, the current inspection interval could be closed out relative to reactor vessel shell weld examinations by implementing the regularly scheduled reactor vessel shell weld examinations as modified by previously approved applicable relief requests for that interval.

The NRC recognizes that, as noted by commentors, there may exist conditions that prevent licensees from completely satisfying the requirements for the augmented reactor vessel shell weld

examination as specified in § 50.55a(g)(6)(ii)(A). For this reason, § 50.55a(g)(6)(ii)(A)(5) has been added to permit licensees that make a determination that they are unable to completely satisfy the specified augmented examination to propose and use alternatives that have been authorized by the NRC's Director of the Office of Nuclear Reactor Regulation.

This final rule amends § 50.55a to separate the requirements for inservice testing from those for inservice inspection by moving the requirements for inservice testing to a separate paragraph. Previously, § 50.55a(g), "Inservice inspection requirements," specified the requirements for (1) preservice and inservice examinations for Class 1, Class 2, and Class 3 components and their supports, (2) system pressure tests for Class 1, Class 2, and Class 3 components, and (3) inservice testing of Class 1, Class 2, and Class 3 pumps and valves. In order to emphasize the importance of inservice testing and to distinguish more clearly its requirements from those of inservice inspection, this final rule moves the requirement for inservice testing from § 50.55a(g), "Inservice inspection requirements," to a separate (previously reserved) § 50.55a(f), which is titled "Inservice testing requirements." All existing requirements for inservice examination and system pressure testing are retained in § 50.55a(g).

There is overall favorable acceptance of the separation of the requirements in the regulation for inservice testing and for inservice inspection. It is generally believed by the commentors, as it is believed by the NRC, that the separation serves to clarify and emphasize the requirements for inservice testing. Two administrative changes were made in the development of § 50.55a(f) relative to existing § 50.55a(g). First, § 50.55a(f)(6)(ii) has been added to indicate the Commission's intent to impose an augmented inservice testing program if added assurance of operational readiness is deemed necessary. This paragraph only indicates intent and does not impose a specific requirement. It does parallel the existing § 50.55a(g)(6)(ii) which specifies that the Commission may require an augmented inservice inspection program for systems and components for which it deems that added assurance of structural reliability is necessary. One utility commentor expressed concern that the addition of § 50.55a(f)(6)(ii) would permit the Commission to impose an augmented inservice testing program without further justification. This is not the case. Any program for augmented

inservice testing will be fully justified with a documented regulatory analysis that includes the appropriate backfit analysis. The intent of the NRC to perform the necessary backfit analysis is clearly demonstrated by the backfit analysis that was performed to require the augmented examination of the reactor vessel that is specified in § 50.55a(g)(6)(ii)(A) of this final rule.

Second, this final rule includes the addition of introductory text to § 50.55a(g) which states that the requirements for inservice testing of Class 1, Class 2, and Class 3 pumps and valves are located in § 50.55a(f). This change is necessary because the placement of inservice testing requirements into a separate § 50.55a(f), as included in the proposed rule, would have caused administrative inconsistencies with regard to existing references to § 50.55a(g) for inservice testing in documents such as technical specifications, safety analysis reports, procedures, and records. With this change, existing references to § 50.55a(g) for inservice testing will refer the user to § 50.55a(f), where the specific requirements for inservice testing are located. The NRC recommends that as the governing documents are updated, the direct reference to § 50.55a(f) be incorporated, as appropriate.

Two editorial revisions, relative to the previous § 50.55a(g), are included in the new § 50.55a(f). These editorial revisions: (1) Reserve § 50.55a(f)(3) (i) and (ii) so that the structure of § 50.55a(f) will parallel that of § 50.55a(g) for the purpose of promoting easier cross-referencing between the two paragraphs; and (2) modify the reference to 120-month inspection interval in § 50.55a(g) to 120-month interval in § 50.55a(f), because the term "inspection interval," as used in Section XI, is used only in the context of inservice inspection. (The term "test interval" was not used because, unlike inspection interval, the 120-month time frame does not designate a period of required actions for the testing program. The 120-month interval used in § 50.55a(f) and the 120-month inspection interval used in § 50.55a(g) are considered by the staff to be coincident for the purpose of 120-month updating requirements.)

A number of comments were received regarding the scope of § 50.55a as applied to pump and valve testing. These comments ranged from recommending that the scope of § 50.55a be expanded to be consistent with the scopes of OM part 6 and part 10, which go beyond Class 1, Class 2, and Class 3 components, to recommending that the

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scope of § 50.55a be limited to ASME Code classified components. One commentor expressed concern that the Supplementary Information in the proposed rulemaking addressed Generic Letter 89-04 in a way that seemed to include the letter in the rulemaking. That was not intended. To the contrary, the intent of this rulemaking is to maintain the existing scope of § 50.55a for pump and valve testing. For plants whose construction permits were issued on or after January 1, 1971, that scope constitutes Code classified components as specified in existing § 50.55a(g) (2) and (3) (i.e., § 50.55a(f) (2) and (3) by this rulemaking). For those plants whose construction permits were issued prior to January 1, 1971, that scope constitutes components of the reactor coolant pressure boundary which must meet the requirements applicable to components that are classified as ASME Code Class 1, and other safety-related pumps and valves which must meet the requirements applicable to components that are classified as ASME Code Class 2 or Class 3, as specified in existing § 50.55a(g)(1) (i.e., § 50.55a(f)(1) by this rulemaking). The reference to the generic letter has not been included in the final rule.

A number of comments were received with regard to snubber testing which is outside the scope of this rulemaking. Commentors generally suggested that ASME OM part 4, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)," which is referenced in Subsection IWF in the 1987 Addenda, 1988 Addenda and 1989 Edition of Section XI, be incorporated by reference into § 50.55a. Subsection IWF, "Component Supports," provides rules for the examination of component supports, and the testing of snubbers. Prior to the 1987 Addenda, Subsection IWF provided self-contained rules for the testing of snubbers. Section 50.55a does not specify requirements for the testing of snubbers. This was clarified by the separation of requirements for inservice testing and inservice inspection. Inservice testing requirements specified in § 50.55a(f) apply only to pumps and valves. The testing requirements specified in OM part 4 and referenced in Section XI Subsection IWF article IWF-5000 are not incorporated by reference into § 50.55a. Requirements for the testing of snubbers are generally governed by plant technical specifications. NRC is in the process of initiating a proposed rulemaking that would, among other things, address the incorporation by reference of the ASME OM Code, which contains rules for pump, valve, and

snubber testing, into § 50.55a(f). The NRC will as a part of this future rulemaking determine the need for and acceptability of endorsing the ASME OM Code rules for snubber testing. However, in accordance with requirements for examination of component supports specified in § 50.55a(g), licensees are required to implement the rules for examination of snubbers that are provided in OM part 4 as referenced in Subsection IWF Article IWF-5000 in the applicable Section XI addenda and edition of this final rule.

Section 50.55a(g) provides requirements for selecting the ASME Code edition and addenda of Section XI to be complied with during the preservice inspection (§ 50.55a(g)(3), for plants whose construction permit was issued on or after July 1, 1974; the initial 10-year inspection interval (§ 50.55a(g)(4)(i)); and successive 10-year inspection intervals (§ 50.55a(g)(4)(ii)). As noted in the final rule codifying the most recent amendment to § 50.55a (May 5, 1988; 53 FR 16051), paragraph IWA-2400 of Section XI (as revised by the Winter 1983 Addenda) incorporated rules for selecting the applicable edition and addenda of Section XI during the preservice inspection (IWA-2411), the initial 10-year inspection interval (IWA-2412), and successive 10-year inspection intervals (IWA-2413). The criteria provided in the regulations and Section XI are effectively the same for the preservice inspection and the successive 10-year inspection intervals, but differ for the initial 10-year inspection interval. In general, use of the Commission requirements will result in the selection of a more recent edition and addenda than will use of the Section XI rules. Satisfying the requirements of § 50.55a(g)(4)(i) for the initial 10-year inspection interval will, in general, also satisfy the rules of Section XI. Although the Section XI requirements for selecting editions and addenda remain unchanged in the 1986 Addenda, 1987 Addenda, 1988 Addenda, and 1989 Edition, the Commission is reaffirming its intent that in all cases the existing requirements in § 50.55a(g) be the basis for selecting the edition and addenda of Section XI to be complied with during the preservice inspection, the initial 10-year inspection interval, and the successive 10-year inspection intervals.

This final rule makes a number of editorial changes to § 50.55a for the purpose of adopting a standard convention for imposing an obligation or expressing a prohibition. In this convention "shall" is used to impose an obligation on an individual or legal

entity capable of performing the required action, "must" is used as the mandatory form when the subject of the sentence is an inanimate object, and "may not" is used to impose a prohibition. The following paragraphs are amended solely to be consistent with this convention: The introductory paragraph to the section; paragraphs (a)(1), (a)(3), (b)(2)(iii), (b)(2)(iv), (g)(1), (g)(3)(ii), (g)(3)(iii), (g)(3)(iv), introductory paragraph to (g)(4), (g)(4)(i), (g)(4)(ii), (g)(5)(i), (g)(5)(iv), (g)(6)(i), (h), and footnote 8. Other paragraphs are amended for the same editorial reason, but they also contain technical revisions relevant to other parts of this final rule. Section 50.55a(f) has been developed consistent with the noted convention.

Subsection IWE, "Requirements for Class MC Components of Light-Water-Cooled Power Plants," was added to Section XI, Division 1, in the Winter 1981 Addenda. Since § 50.55a does not currently address the inservice inspection of containments and the scope of § 50.55a is not affected by this final rule, the requirements of Subsection IWE are not imposed upon Commission licensees by this amendment. The incorporation by reference of Subsection IWE into § 50.55a is presently the subject of a separate rulemaking action. Section 50.55a(b)(2)(vi) is reserved for that action.

The NRC previously alerted all holders of operating licenses or construction permits for nuclear power reactors, through NRC Information Notice No. 88-95 (IN 88-95), "Inadequate Procurement Requirements Imposed by Licensees on Vendors," to the potential that inadequate licensee procurement requirements or implementation by vendors in supplying components under the ASME Code could result in failure by these vendors to fully implement 10 CFR part 50, Appendix B (Quality Assurance Criteria). The problem, which was revealed during routine NRC inspections of vendors, resulted from the belief by some vendors that if an item was exempted by the ASME Code from Code requirements, the item was exempt from all other regulatory requirements. The apparent belief of some vendors was that since NRC endorses the ASME Code in its regulations and has accepted the various exemptions, there are, therefore, no other applicable regulatory requirements. This belief is not consistent with the NRC position. The NRC reaffirms its position which, as previously put forth in IN 88-95, states that all safety-related items, even those exempted from ASME Code requirements, are required to be

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manufactured under a quality assurance program that meets the requirements of 10 CFR part 50, appendix B.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action that significantly affects the quality of the human environment and therefore an environmental impact statement is not required.

This final rule is one part of a regulatory framework directed to ensuring pressure vessel integrity, and the operational readiness of pumps and valves. Therefore, in the general sense, this rule will have a positive impact on the environment. This rule incorporates by reference into the NRC regulations improved rules contained in the ASME Code for the construction, inservice inspection, and inservice testing of components used in nuclear power plants. In addition, this rule requires an augmented examination of reactor vessel shell welds to further ensure the structural integrity of the reactor vessel. The occupational exposures attributable to the expanded reactor vessel examinations contained in the ASME Code and the augmented examination are not expected to be significant because exposures will be limited by the use of remote examination equipment. Occupational exposures associated with the augmented reactor vessel examination will be further limited by provisions in the final rule that permit, under certain conditions, the licensee to satisfy the requirement for the augmented examination by previously scheduled or implemented reactor vessel examinations, or by deferring the examination to the next interval and using the deferred examination as a replacement for the previously scheduled examination for that interval. The actions required by applicants and licensees to implement the final rule are of an established nature that should not increase the potential for a negative environmental impact.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Gilbert C. Millman, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear

Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3848.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0011.

The public reporting burden for this collection of information is estimated to average 42 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this amendment to the regulations. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Mr. G.C. Millman, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-3848.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule will not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121. Since these companies are dominant in their service areas, this rule does not fall within the purview of the Act.

Backfit Analysis

The final rule incorporates by reference a later edition and addenda to Section III, Division 1, and, with both a technical and nontechnical modification, Section XI, Division 1, of the ASME Code; imposes an augmented examination on reactor vessels; and separates the requirements for inservice inspection from those for inservice testing.

The incorporation by reference into the regulations of later editions and addenda of Section III and Section XI of the ASME Code is not a backfit because Section III requirements apply only to new construction, except as voluntarily implemented by licensees, and because updated Section XI requirements are an integral part of the longstanding § 50.55a(g)(4)(ii) requirement to update inservice inspection and inservice testing programs to reflect the requirements of the latest edition and addenda of Section XI incorporated by reference in § 50.55a(b) 12 months prior to the start of the 120-month inspection interval, subject to specified limitations and modifications. The technical modification to part 10 of ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987 specified in § 50.55a(b)(2)(vii) is not a backfit because it simply retains an existing Section XI requirement for containment isolation valve testing that licensees now are required to implement in accordance with § 50.55a(g). The nontechnical modification specified in § 50.55a(b)(2)(viii) is not a backfit because it only serves to properly identify an incorrectly referenced standard in Section XI.

The NRC has concluded, based on the analysis required by § 50.109(a)(3) which is provided in the regulatory analysis, that the backfit that will be imposed by the augmented reactor vessel examination specified in § 50.55a(g)(6)(ii)(A) will result in a substantial increase in the overall protection of the public health and safety, and that the direct and indirect costs of implementation are justified in view of the increased protection.

The separation in the regulation of the inservice inspection and inservice testing requirements is an administrative reorganization of § 50.55a that has no impact on existing technical requirements and, therefore, has no effect on backfitting.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear

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power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 50.

and clarification and update of regulations affecting certain material licensees.

EFFECTIVE DATE: October 1, 1992.

FOR FURTHER INFORMATION CONTACT: Mr. C.W. Nilsen, telephone (301) 492-3834 or Mr. Joseph J. Mate, telephone (301) 492-3795, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

SUPPLEMENTARY INFORMATION:

Background

On January 28, 1992, the President of the United States signed a memorandum addressed to selected Federal Agency Heads who are concerned with energy production and protection of the environment. The memorandum requested the addressees work together to streamline the regulatory process and ensure that the regulatory community is not subject to duplicative or inconsistent regulation.

On the same day, the President signed a second memorandum entitled "Reducing the Burden of Government Regulation." This memorandum, which was sent to all Federal agencies, set aside a 90-day period to review and evaluate existing regulations and programs and to identify and accelerate action on initiatives that will eliminate any unnecessary regulatory burden. At the end of the review period, agencies were to submit a written report indicating the regulatory changes recommended or made during the review period and the potential savings as a result of the changes.

In response to the Presidential memoranda, the Commission decided that it would be consistent with its policy to monitor the impact of complying with NRC regulations by its licensees to instruct its Committee to Review Generic Requirements (CRGR) to review existing NRC regulations to determine whether regulatory burdens can be reduced without in any way reducing the protection for the public health and safety and the common defense and security. In accomplishing their review, the CRGR drew upon previous studies and solicited comments from the public, other Federal agencies, and the Commission's staff. A Federal Register Notice was published on February 24, 1992 (57 FR 6299) seeking public comment in connection with the review, and a second Federal Register Notice on March 23, 1992 (57 FR 9985) discussed likely or possible candidates for action, based on CRGR's preliminary evaluation of comments. An associated

57 FR 39353
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10 CFR Parts 20 and 50

RIN 3150-AE30

Reducing the Regulatory Burden on Nuclear Licensees

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reduce the regulatory burden on nuclear licensees. This action reflects an initiative undertaken by the Commission in response to a Presidential memorandum requesting that selected Federal agencies review and modify regulations that would eliminate any unnecessary burden of governmental regulation and ensure that the regulated community is not subject to duplicative or inconsistent regulation. In that spirit, the NRC's Committee to Review Generic Requirements (CRGR) identified eight areas where regulations could be revised to reduce the regulatory burden on licensees without in any way reducing the protection for the public health and safety or the common defense and security. The final amendments address unnecessary regulatory requirements related to the frequency of reporting information, analysis of emergency core cooling systems for operating power reactors;

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public meeting was held on March 27, 1992, in Bethesda, Maryland.

After completing their special review, the CRGR recommended revising the regulations in eight areas. The proposed revisions met the criteria for reducing the burden without in any way reducing the protection for public health and safety and common defense and security.

The Chairman of the NRC sent a report to the President of the United States on April 27, 1992, which summarized NRC's activities concerning the President's directive and advised the President that NRC would pursue the CRGR's recommendations expeditiously within the framework of the procedures and practices for rulemaking.

On June 1, 1992, in response to a memorandum from the President of the United States, dated April 29, 1992, the Commission directed the staff to strive to publish the proposed rule changes in the eight areas identified by the CRGR in the *Federal Register* for comment as soon as possible, but not later than June 15, 1992, with a view to issuing the final rules in the *Federal Register* no later than August 27, 1992. On June 18, 1992 (57 FR 27187), the NRC published the proposed rulemaking in the *Federal Register* for comment. The comment period expired on July 20, 1992.

Summary and Analysis of Public Comments

Thirty comment letters were received on the proposed rule and are available for public inspection, and copying for a fee, at the Commission's Public Document Room located at 2120 L street, NW. (Lower Level), Washington, DC. The comments on the proposed rule came from a variety of sources. These included private citizens, publicly-held corporations, citizens' groups, the armed forces, industry representatives, electric power companies or their representatives, and legal firms. Eleven significant points were raised by the commenters. Of the 30 comment letters received, 28 letters were favorable and 2 letters were partially opposed to the regulation changes. The comments and their resolutions are discussed below.

1. *Comment.* One commenter suggested that the Commission not only amend § 20.1906(b) concerning contamination monitoring, but also issue a statement that those licensees still operating under the old part 20 not be required to monitor packages for contamination that meet the conditions of § 20.1906(b).

Response. The NRC does not believe that the suggested change by the commenter is necessary because the amendment of § 20.1906(b) will make the

subject contamination monitoring requirements of the new part 20 essentially the same as those contained in the existing part 20 (§ 20.205(b)(1)(iii) and (c)(1)).

2. *Comment.* One commenter opposed the rule on the basis that sealed sources routinely leak and, therefore, should not be excluded from monitoring.

The commenter cited an example where a driver and a truck were contaminated because of a failure to conduct a proper radiation sweep.

Response. The final rule does not exempt licensees from monitoring or surveying any packages with evidence of degradation of package integrity, including evidence of potential contamination. Likewise, this revision does not relax the preshipment requirements for monitoring of packages contained in 10 CFR part 71. The NRC does not have any evidence that supports the commenter's assertion that sealed sources routinely leak and, thus, the NRC believes that the requirements in place are sufficient to detect potential abnormal situations. No amount of regulation can, a priori, preclude all incidents involving leaking sources. However, these incidents can be dealt with through followup inspection and enforcement under the present regulatory scheme.

3. *Comment.* Several commenters addressed in general terms the need for the NRC to continue its efforts to reduce any unnecessary regulatory burden on licensees through amendments to 10 CFR chapter I.

Response. The NRC will continue its efforts to identify additional amendments that will provide for a reduction in regulatory burden while still assuring adequate protection of the public health and safety.

4. *Comment.* One commenter questioned the basis for exempting from external monitoring for radiation levels only nuclear material that was either in the form of a gas or in a special form since the external radiation levels are dependent upon radionuclides, quantity, shielding, and distance between radioactive material and the point of interest rather than material form.

Response. The NRC agrees with the commenter that the requirement to survey, upon receipt, the radiation levels on the package exterior should be based on the potential radiation hazard. Therefore, the requirement specified in 10 CFR 20.1906(b)(2) that monitoring of radiation levels be performed on labeled packages is being revised to delete the exemption that the radioactive material be in the form of a gas or in special form as defined in 10 CFR 71.4.

5. *Comment.* One commenter questioned whether the monitoring requirements were applicable for packages that show evidence of damage.

Response. The wording of 10 CFR 20.1906(b)(3) has been revised to indicate more clearly that packages with evidence of damage are to be monitored for both radioactive contamination and for radiation levels.

6. *Comment.* Several commenters requested that the proposed wording to 10 CFR 50.71(e)(4) concerning FSAR updates be revised to decouple the FSAR updates from the refueling cycle and that the 24-month requirement for updates is an unnecessary restriction.

Response. The proposed changes were not accepted. The majority of facility design changes reflected in an updated FSAR are effected during the refueling outage. The use of the refueling cycle interval provides for a current plant status document that is coordinated with plant changes. The wording of § 50.71(e)(4) is not restrictive to plants that will eventually increase their refueling cycle to 24 months.

7. *Comment.* Three electric utilities requested that the proposed wording in 10 CFR 50.36(a)(2) concerning radiological effluent reporting be revised to specify a particular date. One commenter suggested: "The report must be submitted as specified in § 50.4 prior to March 31 of each year."

Response. The wording of 10 CFR 50.36(a)(2) gives the licensee maximum flexibility for scheduling submission of radiological effluent reports with the only restriction being that the interval between reports must not exceed 12 months. The reporting requirements remain as proposed.

8. *Comment.* Two commenters suggested that the amendments indicate that the changes in reporting requirements of the new regulations take precedence over the existing license technical specifications or license conditions where there may be a conflict.

Response. The proposed amendments are generic and licensees may request administrative amendments to any conflicting license condition or technical specification as needed.

9. *Comment.* Two commenters suggested that NRC reconsider the need for licensees to submit 10 CFR 50.36a(2) effluent release reports and 10 CFR 50.59 reports concerning annual design changes. The commenters noted the requirement for these reports was issued before the Final Safety Analysis Reports were required to be updated periodically and before resident inspectors were assigned to all reactor sites. The

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commenters also observed that these reports are now available on site for review by inspectors at any time and that most design changes are reflected in the FSARs. Further, the commenters did not believe that these reports are routinely reviewed by the NRC staff. The commenters believed that if the requirements to submit such a report were eliminated, there would be no impact on safety, the required evaluations could continue to be performed, and the reports would continue to be available for review. The commenters believed that the deletion of these requirements would contribute to significant increased savings by licensees.

Response. The consequence of eliminating the requirements for these reports requires significant additional assessment. Thus, the proposed revisions have not been modified in order not to delay the benefit of burden reduction. Although this proposal will not be addressed in the current rulemaking, these suggested revisions will be evaluated as part of an ongoing NRC effort.

10. Comment. One commenter questioned whether the changes in reporting frequency of facility changes under 10 CFR 50.59, FSAR updates, and radiological effluent reports would impair the ability of the NRC to review the information in a timely manner.

Response. The resident inspector program along with regional regulatory programs provide timely and in some cases day-by-day review of facility operations. The changes being made will not impair NRC's ability to review the information.

11. Comment. One commenter (Yankee Atomic Electric Co.) stated that the FSAR update changes discussed in Action Item 1 in the proposed rule and in Action Item 7 of this document emanated from a petition for rulemaking that they submitted to the NRC on February 9, 1990 (PRM 50-55). The notice of receipt for this petition was published in the *Federal Register* on May 3, 1990 (55 FR 18808). The petitioner originally requested that nuclear power plant licensees be allowed to file FSAR reports at periods greater than annually. They suggested that § 50.71(e)(4) be revised to read as follows: "Subsequent revisions shall be filed no later than 6 months after completion of each planned refueling outage for a licensee's facility. If two or more facilities share a common FSAR, the licensees shall designate the refueling outage schedule on one of the multiple facilities to establish the schedule for revisions of the common FSAR. The FSAR revisions shall reflect all changes up to a

maximum of 6 months prior to the date of filing."

During the comment period on this proposed rule, Yankee Atomic Electric Co. stated that the period between successive FSAR updates should not be limited to 24 months as proposed. Their rationale was that the restriction of 24 months was unnecessary.

Response. Upon receipt of the Yankee Atomic Electric Co. comment letter of July 20, 1992, the NRC again reviewed the petition (PRM 50-55) submitted by Yankee Atomic Electric Co. and the comments submitted in response to the Notice of Receipt. Based on this review, the NRC believes that the current action being taken to reduce the burden on nuclear licensees is substantially similar to the relief requested in the petition. The 24-month interval for successive FSAR updates is addressed in comment number 6 above. It should be noted that the petition did not contain a specific reference to a number of months regarding successive FSAR updates. With respect to the petitioner's concern about multiple facilities sharing a common FSAR, licensees will have maximum flexibility for scheduling updates on a case-by-case basis. This final rule does not address multiple facilities.

This final rule is considered by the NRC to grant the petition submitted by the Yankee Atomic Electric Co. This final rule constitutes final NRC action on the petition.

Discussion

The Nuclear Regulatory Commission is amending 10 CFR parts 20 and 50 to implement the eight proposed actions identified below and also identified in the report on "Special Review of Existing NRC Regulations" that was completed by the CRGR and that was attached to Chairman Selin's letter to the White House dated April 27, 1992. These actions will not reduce the protection of the public health and safety or the common defense and security. Each of the eight actions is discussed below.

1. Posting of Rooms Occupied by Diagnostic Nuclear Medicine Patients (10 CFR 20.1903(b))

The revision reduces the posting requirements for rooms in hospitals occupied by patients administered radioactive materials who might otherwise be released from confinement under the provisions of 10 CFR 35.75.

The estimated savings to licensees is \$300,000 for elimination of the need for posting.

2. Contamination Monitoring of Packages (10 CFR 20.1906(b))

This action clarifies the regulations and reduces the monitoring burden for packages containing radioactive material in the form of a gas or in a special form as defined in 10 CFR 71.4.

The estimated savings to licensees is \$10.1 million.

3. Frequency of Radiological Effluent Reports (10 CFR 50.36a)

This action reduces the requirements for the submission of reports concerning the quantity of principal nuclides released to unrestricted areas in liquid and gaseous effluents from semiannually to annually.

The estimated savings for this action, assuming an average remaining plant life of 26 years, is \$16,800,000 for licensees and \$360,000 for the NRC.

4. Use of Fuel with Zirconium-Based (Other than Zircaloy) Cladding (10 CFR 50.44, 50.46, and Appendix K to Part 50)

This action revises the acceptance criteria in 10 CFR 50.44 and 50.46, relating to evaluations of emergency core cooling systems and combustible gas control applicable to zircaloy clad fuel to include ZIRLO clad fuel. This revision to include ZIRLO as an acceptable zirconium based cladding material along with zircaloy will reduce the licensee burden but will not reduce the protection of the public health or safety. The NRC will address, through an appropriate separate rulemaking, the use of other similar zirconium based cladding materials when all of the necessary safety evaluations for those materials have been completed.

The estimated savings for eliminating the need to process recurring exemptions to the regulations to licensees is \$2 million and the savings to the NRC is \$50,000. This estimate is based on six plants per year requesting the use of ZIRLO clad fuel over the next 8 years.

5. Receipt Back of Processed Low Level Waste (10 CFR 50.54)

This action is addressed in a separate rulemaking. For additional information, see the proposed rule entitled "Receipt of Byproduct and Special Nuclear Material" published in the *Federal Register* on April 24, 1992 (57 FR 15034).

6. Annual Design Change Reports (10 CFR 50.59)

This action revises the requirements for the annual submission of reports for facility changes under § 50.59 (Changes, tests, and experiments) to conform with the proposed change for updating the

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FSAR (see Item 7). This action does not affect the substance of the evaluation or the documentation required for § 50.59 type changes. It only affects the interval for submission of the information to the NRC. Instead of submitting the information annually, the information can be submitted on a refueling cycle basis, provided the interval between successive reports does not exceed 24 months.

The estimated savings for this action, assuming an average remaining plant life of 26 years, is \$1,500,000 for licensees and \$400,000 for the NRC.

7. Frequency of Final Safety Analysis Report (FSAR) Updates (10 CFR 50.71)

This action provides licensees with an option from the current requirements for the annual updating of the Final Safety Analysis Report (FSAR). In lieu of an annual submission, licensees may choose to provide the required information once per each refueling outage. Updates to the FSAR can be submitted 6 months after each refueling outage, provided the interval between successive updates to the FSAR does not exceed 24 months. This action does not affect the substance of FSAR updates.

The estimated savings for this action, assuming an average remaining plant life of 26 years, is \$11,100,000 for licensees and \$910,000 for the NRC.

8. Elimination of Unnecessary Event Reports (10 CFR 50.72 and 50.73)

This action is addressed in a separate rulemaking. For additional information, see the proposed rule entitled "Minor Modifications to Nuclear Power Reactor Event Reporting Requirements" published in the Federal Register on June 26, 1992 (57 FR 28642).

Environmental Impact: Categorical Exclusion

The NRC determined that the final regulation is the type of action described in categorical exclusions 10 CFR 51.22(c) (2) and (3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final regulation.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval numbers, 3150-0014 and 3150-0011.

The reduction of the public reporting burden for this collection of information is estimated to average 208 hours per

response for operating power reactors and 1 hour per response for certain materials licensees, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden reduction or any other aspect of this decrease in the collection of information including suggestions on this reduced burden to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019 (3150-0011, 3150-0014), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The NRC is amending its regulations to reduce the regulatory burden on nuclear licensees. This action reflects an initiative on the part of the NRC and responds to the spirit of President Bush's memoranda of January 28, 1992, which requested that selected Federal agencies review and modify regulations that will reduce unnecessary burden of governmental regulation and ensure that the regulated community is not subject to duplicative or inconsistent regulation. The NRC has identified eight rulemaking actions that would eliminate duplicative or inconsistent regulatory requirements. Six of the actions are included in this package. Two of the eight actions are being processed as separate rulemakings and are not discussed here. The eight actions are as follows:

1. Posting of Rooms Occupied by Diagnostic Nuclear Medicine Patients—to include exceptions for posting requirements for rooms in hospitals for patients administered radiopharmaceuticals for diagnostic tests (10 CFR 20.1903(b)).
2. Contamination Monitoring of Packages—to eliminate certain provisions for contamination monitoring of packages containing certain types of radioactive material (10 CFR 20.1906(b)).
3. Frequency of Radiological Effluent Reports—to change the frequency of reports on power reactor radiological effluents from twice per year to once per year (10 CFR 50.36a).
4. Use of Fuel with Zirconium-Based Cladding—to eliminate the need to obtain exemptions in order to use certain fuel cladding material not presently addressed in the regulations (10 CFR 50.44, 10 CFR 50.46 and 10 CFR part 50, appendix K).
5. Receipt Back of Processed Low Level Waste—separate rulemaking (10 CFR 50.54).

6. Annual Design Change Reports—to change the frequency of reporting changes at power reactors from once per year to once per refueling cycle (10 CFR 50.59(b)).

7. Frequency of Final Safety Analysis Report Updates—to change the frequency of safety analysis report updates from once per year to once per refueling cycle (10 CFR 50.71).

8. Elimination of unnecessary event reports—separate rulemaking (10 CFR 50.72 and 50.73).

Each of these actions considers the elimination or relaxation of regulatory requirements currently imposed on NRC licensees. Action Items 1 and 2 would affect material licensees while Action Items 3 through 8 would affect power reactor licensees. For each regulatory action, the NRC has evaluated the health and safety implications and the cost impacts relative to a status quo alternative. The NRC finds that each would result in a reduction in burden without reducing protection of the public health and safety. The public health and safety determination appears in a document entitled "Report on Special Review of Existing NRC Regulations by the Committee to Review Generic Requirements" issued on April 13, 1992. Additionally, an analysis of the safety implications of Action Item 4 is available in a U.S. NRC letter to Westinghouse Corporation dated July 1, 1991, entitled "Acceptance For Referencing of Topical Report WCAP-12610 'Vantage+ Fuel Assembly Reference Core Report' (TAC NO. 77258)."

The cost savings to both the licensee population and the NRC appear below. Dollar impacts are expressed on a 1992 present worth basis in 1992 dollars. The basis for these cost estimates is available in a report entitled "Analyses of Potential Cost Savings for Selected NRC Reforms" dated June 10, 1992.

TOTAL DISCOUNTED ¹ COST SAVINGS ASSOCIATED WITH PROPOSED REGULATORY REVISIONS

[In millions of 1992 dollars]

Regulatory revision	Licensees	NRC
Item 1	0.3	² -0.100
Item 2	10.1	² -0.100
Item 3	16.8	0.360
Item 4	2.0	0.050
Item 5	³ N/A	³ N/A
Item 6	1.5	0.400
Item 7	11.1	0.910
Item 8	³ N/A	³ N/A

¹ Assumes an annual real discount rate of 5%.

² Negative cost savings represent a cost expenditure.

³ Not applicable—separate rulemaking.

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The NRC concludes that each of these proposed regulatory revisions is justified due to the net cost savings that will accrue without reducing public health and safety.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that, this rule will not have a significant adverse economic impact on a substantial number of small entities. The NRC has adopted size standards that classify a small entity as a small business or organization, one whose gross annual receipts do not exceed \$3.5 million, or as a small governmental jurisdiction whose supporting population is 50,000 or less. The first two issues involve the relaxation of requirements which will affect approximately 5,000 material licensees. Although many of these licensees may be small entities, there should be no adverse impact on these small licensees because the regulations are being relaxed. The remaining six issues affect 112 power reactor licensees. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the NRC Size Standards.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and, therefore, that a backfit analysis is not required because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 20

Byproduct material, Criminal penalty, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the

Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 20 and 50.

57 FR 41378

Published 9/10/92

Effective 10/13/92

10 CFR Part 50

RIN 3150-AE12

Minor Modifications to Nuclear Power Reactor Event Reporting Requirements

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) has amended its regulations to make minor modifications to the current nuclear power reactor event reporting requirements. The final rule applies to all nuclear power reactor licensees and deletes reporting requirements for some events that have been determined to be of little or no safety significance. The final rule reduces the industry's reporting burden and the NRC's response burden in event review and assessment.

EFFECTIVE DATE: October 13, 1992.

FOR FURTHER INFORMATION CONTACT: Raji Tripathi, Office for Analysis and Evaluation of Operational Data, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 492-4435.

SUPPLEMENTARY INFORMATION:

Background

The Commission is issuing a final rule that amends the nuclear power reactor event reporting requirements contained in 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," and 10 CFR 50.73, "Licensee Event Report System." The final rule is issued as part of the Commission's ongoing activities to improve its regulations. Specifically, this final rule amends 10 CFR 50.72 (b)(2)(ii) and 10 CFR 50.73 (a)(2)(iv). On June 26, 1992 (57 FR 28642), the Commission issued a proposed rule requesting public comments on these amendments.

Over the past several years, the NRC has increased its attention to event reporting issues to ensure uniformity, consistency, and completeness in reporting. In September 1991, the NRC's Office for Analysis and Evaluation of Operational Data (AEOD) issued for comment a draft NUREG-1022, Revision 1,¹ "Event Reporting Systems 10 CFR

50.72 and 10 CFR 50.73—Clarification of NRC Systems and Guidelines For Reporting." Following resolution of public comments, the NUREG will be issued in the final form. The NUREG will contain improved guidance for event reporting.

NRC's reviews of operating experience and the patterns of licensees' reporting of operating events since 1984 have indicated that reports on some of these events are not necessary for the NRC to perform its safety mission and that continued reporting of these events would not contribute useful information to the operating reactor events database. Additionally, these unnecessary reports would have continued to consume both the licensees' and the NRC's resources that could be better applied elsewhere. The NRC has determined that certain types of events, primarily those involving invalid engineered safety feature (ESF) actuations, are of little or no safety significance.

Valid ESF actuations are those actuations that result from "valid signals" or from intentional manual initiation, unless it is part of a preplanned test. Valid signals are those signals that are initiated in response to actual plant conditions or parameters satisfying the requirements for ESF initiation.

Invalid actuations are by definition those that do not meet the criteria for being valid. Thus, invalid actuations include actuations that are not the result of valid signals and are not intentional manual actuations. Invalid actuations include instances where instrument drift, spurious signals, human error, or other invalid signals caused actuation of the ESF (e.g., jarring a cabinet, an error in use of jumpers of lifted leads, an error in actuation of switches or controls, equipment failure, or radio frequency interference).

NRC's evaluation of both the reported events since January 1984, when the existing rules first became effective, and the comments received during the Event Reporting Workshops conducted in Fall of 1990 identified needed improvements in the rules. The NRC determined that invalid actuation, isolation, or realignment of a limited set of ESFs including the systems, subsystems, or components [i.e., an invalid actuation, isolation, or realignment of only the reactor water clean-up (RWCU) system,

Nuclear Regulatory Commission, Washington, DC 20555. A copy is also available for inspection or copying for a fee at the NRC Public Document Room, 2120 L Street, NW., (Lower Level), Washington, DC 20555.

¹ Free single copy may be requested by writing to the Distribution and Mail Services Section, U.S.

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the control room emergency ventilation (CREV) system, the reactor building ventilation system, the fuel building ventilation system, or the auxiliary building ventilation system, or their equivalent ventilation systems] are of little or no safety significance. However, these events are currently reportable under 10 CFR 50.72 (b)(2)(ii) and 10 CFR 50.73 (a)(2)(iv).

The final rules for the current event reporting regulations, 10 CFR 50.72 and 10 CFR 50.73 (48 FR 39039; August 29, 1983, and 48 FR 33850; July 26, 1983, respectively), stated that ESF systems, including the reactor protection system (RPS), are provided to mitigate the consequences of a significant event. Therefore, ESFs should (1) work properly when called upon and (2) should not be challenged frequently or unnecessarily. The Statements of Consideration for these final rules also stated that operation of an ESF as part of a pre-planned operational procedure or test need not be reported. The Commission noted that ESF actuations, including reactor trips, are frequently associated with significant plant transients and are indicative of events, that are of safety significance. At that time, the Commission also required all ESF actuations, including the RPS actuations, whether manual or automatic, valid or invalid—except as noted, to be reported to the NRC by telephone within 4 hours of occurrence followed by a written Licensee Event Report (LER) within 30 days of the incident. This requirement on timeliness of reporting remains unchanged.

The reported information is used by the NRC in confirmation of the licensing bases, identification of precursors to severe core damage, identification of plant specific deficiencies, generic lessons, review of management control systems, and licensee performance assessment.

Discussion

The NRC has determined that some events that involve only invalid ESF actuations are of little or no safety significance. However, not all invalid ESF actuations are being exempted from reporting through this rule. The relaxations in event reporting requirements contained in the final rule apply only to a narrow, limited set of specifically defined invalid ESF actuations. These events include invalid actuation, isolation, or realignment of a limited set of ESFs including systems, subsystems, or components (i.e., an invalid actuation, isolation, or realignment of only the RWCU system, or the CREV system, reactor building ventilation system, fuel building

ventilation system, auxiliary building ventilation system, or their equivalent ventilation systems). The actuation of the standby gas treatment system following an invalid actuation of the reactor building ventilation system is also exempted from reporting. In addition, the final rule excludes invalid actuations of these ESFs (or their equivalent systems) from signals that originated from non-ESF circuitry.

However, invalid actuations of other ESFs would continue to be reportable. For example, emergency core cooling system isolations/actuations; containment isolation valve closures that affect cooling systems, main steam flow, essential support systems, etc.; containment spray actuation; and residual heat removal system isolations (or systems designated by any other names but designed to fulfill the function similar to these systems and their equivalents), are still reportable. If an invalid ESF actuation reveals a defect in the system so that the system failed or would fail to perform its intended function, the event continues to be reportable under other requirements of 10 CFR 50.72 and 10 CFR 50.73. If a condition or deficiency has (1) an adverse impact on safety-related equipment and consequently on the ability to shut down the reactor and maintain it in a safe shutdown condition, (2) has a potential for significant radiological release or potential exposure to plant personnel or the general public, or (3) would compromise control room habitability, the event/discovery continues to be reportable.

Invalid ESF actuations that are excluded by this final rule, but occur as a part of a reportable event, continue to be described as part of the reportable event. These amendments are not intended to preclude submittal of a complete, accurate, and thorough description of an event that is otherwise reportable under 10 CFR 50.72 or 10 CFR 50.73. The Commission relaxed only the selected event reporting requirements specified in this final rule.

Licensees are still required under 10 CFR part 50, appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to address corrective actions for events or conditions that are adverse to quality whether the event is reportable or not. In addition, minimizing ESF actuations (such as RWCU isolations) to reduce operational radiation exposures associated with the investigation and recovery from the actuations, are consistent with ALARA requirements.

This rule excludes three categories of events from reporting:

(1) The first category excludes events in which an invalid ESF or RPS actuation occurs when the system is already properly removed from service if all requirements of plant procedures for removing equipment from service have been met. This includes required clearance documentation, equipment and control board tagging, and properly positioned valves and power supply breakers.

(2) The second category excludes events in which an invalid ESF or RPS actuation occurs after the safety function has already been completed (e.g., an invalid containment isolation signal while the containment isolation valves are already closed, or an invalid actuation of the RPS when all rods are full inserted).

(3) The third category excludes events in which an invalid ESF actuation occurs that involves only a limited set of ESFs [i.e., when an invalid actuation, isolation, or realignment of only the RWCU system, or any of the following ventilation systems: CREV system, reactor building ventilation system, fuel building ventilation system, auxiliary building ventilation system, or their equivalent ventilation systems, occurs]. Invalid actuations that involve other ESFs not specifically excluded, (e.g., emergency core cooling system isolations or actuations; containment isolation valve closures that affect cooling systems, main steam flow, essential support systems, etc.; containment spray actuation; residual heat removal system isolations, or their equivalent systems), continue to be reportable.

Licensees continue to be required to submit LERs if a deficiency or condition associated with any of the invalid ESF actuations of the RWCU or the CREV systems (or other equivalent ventilation systems) satisfies any reportability criteria under § 50.72 and § 50.73.

Impact of the Amendments on the Industry and Government Resources

Relaxing the requirement for reporting of certain types of ESF actuations reduces the industry's reporting burden and the NRC's response burden. This reduction is consistent with the objectives and the requirements of the Paperwork Reduction Act. These amendments have no impact on the NRC's ability to fulfill its mission to ensure public health and safety because the deleted reportability requirements have little or no safety significance.

It is estimated that the changes to the existing rules will result in about 150 (or

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5–10 percent) fewer Licensee Event Reports each year. Similar reductions are expected in the number of prompt event notifications reportable under 10 CFR 50.72. Some respondents, in their comments on the proposed rule, dated June 26, 1992, submitted an estimate of approximately 15 percent reduction in their reporting burden.

Summary of Comments

The NRC received 19 comments—2 from individuals, 3 from industry-supported organizations, and 14 from utilities. Except for two respondents, all commenters welcomed the Commission's efforts to reduce the licensee burden and to save the agency's resources in event review and processing. The utilities and the industry-supported organizations expressed their desire for a broader relaxation to include all invalid ESF actuations from reporting.

Other comments from the respondents concerned the following: clarification of the definition of "invalid" actuations; examples of events being exempted from reporting; consideration of plant-specific situations; exemption from reporting of the actuation of the standby gas treatment system following an invalid actuation of the reactor building ventilation system; and possibly extending relaxation of invalid actuations/isolations of RWCU from reporting to include those of the chemical and volume control system in a pressurized water reactor. The Statement of Considerations for this final rule addresses most of these concerns. Other issues and clarifications concerning event reportability will be addressed in NUREG-1022, Revision 1. However, it is not practical to address a plant-specific situation unless it relates to a generic concern.

The Commission stresses that only certain specific invalid ESF actuations are being exempted from reporting through the present amendments. NUREG-1022, Revision 1 will contain specific examples and additional guidance on events which are presently reportable as well as those which are being exempted from reporting through these amendments. In the future, the Commission will give due consideration to other proposed relaxations from event reporting after the NRC staff has had an opportunity to reassess the data needs of the agency and performed safety assessments to justify initiating a separate general rulemaking. Until such time, all events not specifically exempted in these amendments continue to be reportable.

The two respondents who opposed the proposed amendments expressed

their concerns about eliminating the selected event reporting requirements. These commenters believe that the elimination of these event reporting requirements may adversely affect the NRC's information database and ultimately affect the agency's ability to carry out its mission to protect public health and safety. For many years, the NRC staff has been systematically reviewing information obtained from Licensee Event Reports. These assessments of reactor operational experience have included data on the types of events included in the three categories that the NRC is deleting from reporting. The staff's reviews and assessments of nearly 1000 reactor-years of operational experience have identified essentially no safety significance associated with the type of events included in the aforementioned three categories. The Commission has reviewed the scope of these amendments, and on the basis of the staff's assessment of the past reactor operational experience, has subsequently concluded with a reasonable confidence that relaxation from reporting of events in the three categories does not affect the agency's ability to protect public health and safety.

Based on the input from the utilities, these amendments will reduce the industry's reporting burden by about 15 percent. The estimated savings of the NRC's response burden in event review and assessment is about 5–10 percent.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusions 10 CFR 51.22 (c)(3)(ii) and (iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These amendments were approved by the Office of Management and Budget approval numbers 3150-0011 and 3150-0104.

Because the rule will relax existing reporting requirements, public reporting burden of information is expected to be reduced. It is estimated that about 150 fewer Licensee Event Reports (NRC Form 366) and a similarly reduced number of prompt event notifications, made pursuant to 10 CFR 50.72, will be required each year. The resulting reduction in burden is estimated to

average 50 hours per licensee response, including the time required reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and reviewing the collection of information. Send comments regarding the estimated burden reduction or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0011 and 3150-0104), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW., Lower Level, Washington, DC 20555. Single copies of the analysis may be obtained from: Raji Tripathi, Office for Analysis and Evaluation of Operational Data, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 492-4435.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605 (B)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The final rule affects only the event reporting requirements for operational nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration Act in 13 CFR part 121.

Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed an assessment of the need for Backfit Analysis for this final rule. The proposed amendments include relaxations of certain existing requirements on reporting of information to the NRC. These changes neither impose additional reporting requirements nor require modifications to the facilities or their licenses.

Accordingly, the NRC has concluded that this final rule does not constitute a

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backfit and, thus, a backfit analysis is not required.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1964, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adopting the following amendments to 10 CFR part 50.

57 FR 47978
Published 10/21/92
Effective 11/20/92

10 CFR Part 50

RIN 3150-AE04

Receipt of Byproduct and Special Nuclear Material

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations governing the condition of licenses for production and utilization facilities to allow a reactor licensee to receive back byproduct and special nuclear material that is produced by operating the reactor after that material has been sent off-site for processing, such as compaction or incineration.

EFFECTIVE DATE: November 20, 1992.

FOR FURTHER INFORMATION CONTACT: LeMoine J. Cunningham, telephone (301) 504-1086, or Paul H. Lohaus on (301) 504-2553. U.S. Nuclear Regulatory Commission, Washington, DC 20555.

SUPPLEMENTARY INFORMATION:

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- II. Response to Public Comments on the Proposed Rule.

I. Background

On April 24, 1992 (57 FR 15034), the Commission published a proposed rule that would amend its regulations in 10 CFR 50.54, "Conditions of licenses." This addition to the regulations is needed primarily because of changing circumstances surrounding the treatment, storage, and disposal of low-level radioactive waste (LLW) generated by operating nuclear power reactors. At the time when most operating licenses were issued, the Commission expected that LLW would be promptly treated and sent off-site for disposal in a licensed LLW disposal facility. Therefore, licensees were not authorized to receive byproduct or special nuclear material except in the form of sealed sources for analysis, calibration, or other special purposes, in the form of fuel for use in the reactor, or associated with radioactive apparatus or components.

Except for LLW generated in Michigan, where generators have been denied access to LLW disposal capacity since November 10, 1990, companies providing nuclear power reactors with off-site LLW processing and volume-reduction services currently transfer treated waste directly to one of three operating commercial LLW disposal

facilities. These companies providing off-site treatment and volume-reduction services may have several reasons for needing to return treated LLW to the generator, rather than shipping it to a disposal site. First, access to LLW disposal facilities may be restricted for the generator whose waste has been treated. Under the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA), States with operating disposal facilities may deny access to generators in other States. Second, the licensee offering off-site services may not have adequate capacity for storing the waste until disposal. Finally, the legal relationships among States and regions, established under the various compacts ratified by Congress, in conjunction with the LLRWPA, may force return of treated LLW to the generator in order to ensure that the waste is disposed of at the appropriate disposal facility. Accordingly, although a reactor licensee may send its LLW off-site to another licensee for treatment (e.g., compaction, or incineration), the licensee treating the waste will have a need to return the waste to the generator, but may not do so because the generator lacks authority to receive it.

The Commission identified two principal options for addressing this issue. The first option was to use a case-by-case licensing-action approach, either by amending each facility license, or by issuing a separate license under 10 CFR part 30. This action would require each facility licensee either to request an amendment to its operating license, authorizing the receipt of processed LLW, or to request a separate license. However, addressing the issue for each licensee individually would be inefficient, requiring both the licensee and NRC to expend significant resources.

The second option, adopted by the Commission as the final rule, amends 10 CFR 50.54, "Conditions of licenses," to allow reactor licensees to receive back LLW generated at the plant and shipped off-site for processing. This approach not only resolves the authorization issue, but also eliminates the need for significant NRC and licensee efforts to complete and approve the amendment requests to part 50 licenses, and ensures that a uniform approach is applied in all cases.

The Commission considers the final rule a minor amendment that does not represent any change in Commission regulatory policy regarding radioactive waste. On October 16, 1981, the Commission published its policy statement on LLW volume-reduction (46

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FR 51100), in which it called upon all generators of radioactive waste to reduce the volume of LLW for disposal, to extend the life of disposal sites and alleviate storage concerns. The final rule will further enhance licensees' options to reduce the volume of waste, by using services performed off-site and permitting the return of the treated waste to the generator. The Commission anticipates that many reactor licensees will take steps to process or reduce the volume of generated LLW, typically by off-site compaction and incineration, before storing the waste at their facilities, on an interim basis.

However, the Commission does not look favorably on long-term on-site storage. The final rule is intended to ensure that licensees will have adequate short-term on-site storage capacity for self-generated LLW, until permanent disposal capacity is available. The commission does not believe this minor amendment represents a change in the stated Commission position that it " * * does not look favorably on long-term on-site storage." The Commission expects licensees to ship generated wastes for disposal to the extent possible. Storage of LLW should be used only for the short-term management of LLW, when disposal is interrupted or unavailable.

The final rule applies to both power and non-power reactor licensees. The final rule does not authorize the receipt of any material recovered from the reprocessing of irradiated fuel.

In addition to publishing the proposed rule in the April 24, 1992, *Federal Register* NRC sent a copy of the proposed rule to all Agreement and non-Agreement State radiation control program directors, all State liaison officers, and those organizations on the low-level waste compact distribution list, on May 26, 1992. The comment period ended on July 8, 1992. Various comments were received, all of which were evaluated in developing the final rule.

II. Response to Public Comments on the Proposed Rule

The Commission received a total of 31 comment letters on the proposed rule. Responses were received from utilities or their counsel (19); nuclear power and nuclear material user-groups (2); State departments of health and radiation protection agencies (2); public interest groups (2); disposal facility operators and developers (2); and private citizens (4). Copies of these letters are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street NW. (Lower Level), Washington, DC.

Of the 31 letters received, 26 endorsed adoption of the proposed rule. Many of these commenters cited the benefits from off-site waste processing technology that allows operating reactor licensees to maximize current storage capacity and minimize radioactive waste volumes. They emphasized that implementation of the rule is an efficient and cost-effective solution to a practical problem, and several favorably cited the rule's timeliness and potential benefits in light of future uncertainties concerning LLW disposal capacity. One commenter, after endorsing the proposed rule, encouraged NRC to become more involved in the licensing process for new disposal sites. Both Illinois and Arkansas, the only states to provide comments concerning the proposed rule, endorsed the rule.

Approximately 20 specific questions or suggestions were received that address the proposed rule. The majority of comments received may be grouped into one of four basic categories that include:

- (1) Clarification and enhancement of the proposed rule,
- (2) Waste accountability at the processor licensee,
- (3) Radioactive waste transportation concerns, and
- (4) Worker health and safety.

Public comments and NRC responses follow:

Comment: Six commenters requested that the rule be clarified to authorize reactor licensees to receive back processed waste originally generated by any reactor or reactors located at the same site. Commenters pointed out that some plants do not distinguish one unit's waste from an adjacent unit's waste when shipping off-site for treatment, and that oftentimes, wastes generated at a particular site with multiple operating reactors will be commingled. They argued that the proposed rule, if strictly interpreted, would not allow a reactor licensee to receive back processed waste containing waste from another reactor located at the same site. Three commenters explicitly requested that NRC change the proposed rule to permit wastes generated at a single site to be consolidated. Two of the three, Edison Electric Institute and the law firm of Winston & Strawn, provided NRC with specific language for such clarification. Three other commenters concurred with this recommendation by citing Edison Electric Institute's submittal to NRC concerning the proposed rule.

Response: The Commission agrees that the rule should permit radioactive waste from multiple units of one licensee at a particular site to be

received back under the license of any of the units at that site. The Commission has revised the final rule to reflect this change. The following language is added to modify § 50.54(ee)(1) of the final rule: "Each license issued under this part authorizing the possession of byproduct and special nuclear material produced in the operation of the licensed reactor includes, whether stated in the license or not, the authorization to receive back that same material, in the same or altered form or combined with byproduct or special nuclear material produced in the operation of another reactor of the same licensee located at that site * * *"

Comment: One commenter suggested that the proposed rule be modified to authorize the receipt back of byproduct or special nuclear material from a non-licensed entity that is authorized to possess the radioactive material, but is not "a licensee of the Commission or an Agreement State," as the proposed rule had originally stipulated. The commenter suggested that a common or contract carrier transporting source or byproduct radioactive material may not be able to return such material to the reactor licensee generating the material, although this may be necessary in several situations, such as the return of waste because of ineffectual waste packaging. Similarly, the commenter contended, a non-licensed government agency, such as the Department of Energy, may be unable to return treated waste to a reactor licensee if a strict interpretation of the proposed rule were adopted.

Response: The Commission agrees that the rule should permit receipt back, by a reactor licensee, of byproduct and special nuclear material produced by the reactor licensee from a non-licensed entity that is authorized to possess the material. The Commission has revised the final rule to reflect this enhancement. In § 50.54(ee)(1) of the final rule, authority has been granted to power and non-power reactor licensees to receive back byproduct and special nuclear material produced in the operation of the reactor "from a non-licensed entity authorized to possess the material," as well as from Commission or Agreement State licensees.

Comment: One commenter suggested that NRC modify the proposed rule to authorize the transfer of byproduct or special nuclear material for volume-reduction or decontamination purposes among reactor sites with a common licensee. The commenter stated that " * * * under the Commission's restrictive interpretation of the scope of reactor operating licensees, a reactor

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licensee may not receive LLW for processing that was produced in the operation of a reactor for which it also has licensee responsibilities."

Response: The Commission believes authorization permitting a reactor licensee to receive byproduct or special nuclear material, at one reactor site, that is produced at another reactor site for which it also has licensee responsibilities for the purpose of performing decontamination or volume-reduction services, is beyond the scope of this rulemaking. The Commission does not agree that the proposed rule should be modified to allow transfer of byproduct and special nuclear material among reactor sites for this purpose. As a matter of policy, the Commission opposes practices at reactor facilities that may divert the attention of licensee management from the primary task of safe operation of the power reactor. Accordingly, the Commission believes that such situations should continue to be reviewed and authorized on a case-specific basis.

Comment: One commenter suggested that NRC clarify that, if the proposed rule is adopted, the final rule will also authorize the transfer of decontamination equipment that is slightly contaminated with byproduct or special nuclear material among reactor sites with a common license.

Response: The Commission believes this suggestion is beyond the scope and intent of the rulemaking. Accordingly, the Commission does not agree that the proposed rule should address this issue. However, part 50 licenses typically contain conditions that permit transfer of decontamination equipment among reactor sites with a common license. Licenses which permit the licensee to " * * * receive, possess * * * any byproduct, source or special nuclear material * * * associated with radioactive apparatus or components," may authorize the receipt of transferred decontamination equipment.

Comment: Three commenters expressed concern that the rule will result in an increase in the number of miles traveled by radioactive waste on our nation's highways, and that this is not in the public interest. One commenter suggested that potential hazards are greater from the transportation of radioactive waste on the return leg from a processor to a generator, because the radioactive material within the waste has been concentrated.

Response: The proposed rule may result in an increase in the number of miles radioactive waste is transported. The additional dose associated with this transportation, however, represents only

a small increase in doses (that are already small) from transportation activities. Further, all waste shipments must meet the applicable regulatory requirements of the U.S. Department of Transportation and the U.S. Nuclear Regulatory Commission. The regulations require the packaging to be commensurate with the potential hazard of the contents.

Comment: Two commenters suggest that off-site processing creates health risks to "additional attending personnel." One commenter, therefore, advocates on-site processing of waste. This commenter contends that on-site processing minimizes the number of people exposed to the hazards of radiation; additional handling, storage, and transportation will result in higher exposure to personnel and greater risks of harmful effects to the public.

Response: All processing, storage, and transportation of LLW must meet regulatory requirements. This minor rule change, which authorizes receipt of waste, does not change any of the requirements concerning waste processing, storage, and transportation. The collective occupational exposure (dose) would be essentially the same for the waste processing whether the processing were done on-site or off-site, assuming that the same process were used in either location. Additional handling for shipping and receiving of wastes sent off-site for processing is needed; however, this incremental dose from this activity would be a small fraction of the dose for waste processing and other shipping and receiving activities. The corresponding doses to members of the public would also represent a very small incremental increase in doses that already are very small.

Comment: Several comments were received about accountability of waste at the waste processor, and subsequent changes to the waste as a result of waste processing activities. Specifically, two commenters suggested that the possible intermingling of wastes at the processor facility would make difficult the task of ensuring that waste received from a particular generator is returned to that generator alone, as required by the rule. Another commenter expressed concern that accompanying waste manifests may become inaccurate as a result of changes to the waste by the processor licensee.

Response: An individual reactor licensee's decision to ship waste off-site for processing, with the intention of receiving back such LLW for temporary storage, will require the reactor licensee to coordinate with the waste processor, to ensure that waste shipped back to the

facility fulfills the criteria of the new rule and any other applicable regulations. Processors who choose to accept reactor waste intended for return back to the reactor site licensee currently satisfy a host of substantive requirements governing transfer and recordkeeping of radioactive waste cited in 10 CFR 20.311, "Transfer for disposal and manifests," or appendix F to new §§ 20.1001 through 20.2401, "Requirements For Low-Level-Waste Transfer for Disposal at Land Disposal Facilities and Manifests." These rules require that manifests accompanying radioactive waste shipments to licensed waste processors and land disposal facilities. The manifest must indicate the identification of the waste generator, the physical description of the waste, waste volume, waste radionuclide identity and quantity, total radioactivity, and the principal chemical form of the waste. In addition to the manifesting requirements, licensed waste processors who treat or repackage waste must also fulfill waste classification, identification and labeling requirements found in 10 CFR 61.55, 61.56, and 61.57.

The final rule exclusively authorizes reactor licensees to receive back LLW sent off-site for treatment. The final rule does not allow a reactor site to accept any waste that is not originally generated at the site, and the processor must fashion its operations to comply with this condition. The individual processor licensee, when receiving waste intended for return to the reactor site, may have to perform individual "batch" processing, for the reactor licensee to accept processed waste in compliance with the rule.

Comment: One commenter pointed out that waste processing may result in changes to waste classification, and in fact, may concentrate radioactivity enough to approach or exceed greater-than-class-C waste concentrations. This commenter was concerned that these potential shifts in waste classification might go unreviewed. This commenter also expressed concern that waste processing operations may produce waste products containing mixed waste and may result in the release of gases or particulates into the atmosphere. Waste processing operations may increase the toxicity or concentration of the waste, this commenter argued, suggesting that this is an undesirable outcome from the perspective of the Host State responsible for ultimate disposal of the treated waste.

Response: If a reactor licensee intends to receive back LLW shipped off-site from its facilities and is to comply with the rule, the processor licensee will have

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to segregate wastes by individual reactor licensee. Excluding this segregation operation, the rule will not affect waste processor licensee generated waste product or operations. The final rule will not result in changes to waste product currently generated by waste processors. The final rule may lead processors to treat some reactor-generated wastes in individual "batches," to allow return of the waste back to the reactor licensee, but otherwise, processor licensees will simply continue performing LLW volume-reduction activities, as they have before promulgation of the final rule. NRC and Agreement State regulations are in effect which authorize treatment and handling operations at waste processor licensee facilities and ensure that these operations are conducted safely and without adverse effects on the environment. These conditions are not affected by the final rule, and will continue in force after promulgation of the final rule.

Comment: One commenter expressed concern that it was unclear what authority had responsibility to oversee waste processing and enforcement at the processor. This same commenter questioned whether waste ownership or title to the waste may, in fact, become obscured as a result of waste being shipped and managed by several licensees.

Response: NRC will continue to license and inspect processor licensees in non-Agreement States, and the Agreement State authorities will continue to license and inspect their licensees. Tracking and manifest requirements will continue to apply to reactor-generated wastes, and title to the waste and waste ownership can be adequately communicated and documented between reactor licensees and processor licensees. Before the final rule, waste processors have received waste from reactor licensees, have processed the waste to reduce its volume, and have repackaged and shipped for disposal the final, volume-reduced waste product. The transfer of waste from generator to processor and/or broker, and from processor and/or broker to a disposal facility licensee, has not resulted in a significant number of disputes concerning transfer of title or possession of radioactive wastes, among licensees. The contractual arrangements between licensees and the laws of the various States pertaining to transfer of ownership continue to provide licensees with the means by which they can negotiate the transfer of title to the waste. The Commission does not envision any difficulties concerning

radioactive waste title transfer originating from promulgation of the final rule.

Comment: One commenter asked whether the language in the proposed rule prohibiting receipt back of material "recovered from the reprocessing of irradiated fuel" could be applied to LLW containing fuel fines from damaged fuel rods. The commenter questioned whether NRC prohibits off-site treatment of such wastes, and whether the generator of such wastes may refuse to accept back such wastes once processed. The commenter asked whether the term "reprocessing of irradiated fuel" is "narrowly" interpreted by the NRC to refer only to the reprocessing of spent fuel rods.

Response: The proposed rule contains no new authorizations for, or prohibitions against, LLW processing. The term "material recovered from the reprocessing of irradiated fuel" does refer to the reprocessing of "spent fuel rods" and does not apply to LLW containing fuel fines from damaged fuel rods. NRC does not prohibit off-site treatment of LLW that may contain very small quantities of fuel fines from damaged fuel rods. The rule authorizes, but does not require, the receipt of waste. Reactor licensees are not authorized to reprocess irradiated fuel or to possess the wastes from such reprocessing. (Wastes from fuel reprocessing are, by regulatory definition, high-level wastes, not LLW.) The intent of the proposed rule is to allow reactor licensees to receive the radioactive materials that they produce and that they already are allowed to possess. The sentence in question, concerning fuel reprocessing, was added to the proposed rule to make it clear that reactor licensees are not authorized to receive materials that they are not already authorized to possess (reprocessing wastes).

Comment: One commenter expressed concern that by allowing all reactor licensees to receive back waste after processing, many States will simply require these licensees to store all other LLW generated within the State.

Response: The Commission does not believe this issue is germane to the final rule. The final rule affects license conditions allowing receipt of radioactive material, but does not alter conditions concerning storage of radioactive waste. The rule addresses the receipt back of LLW generated only at reactor sites, and shipped off-site for processing. The rule does not authorize the storage of LLW, generated throughout the State, at reactor sites.

Comment: One commenter inquired as to the actions to be taken if a generator refuses to accept waste back after processing.

Response: NRC does not consider this a likely scenario. Both the generator and the processor involved in the transfer of waste for treatment will likely have agreed, by contract, on the terms of treatment and transfer of the LLW. If the waste, on return to the generator, is not accepted by the generator, the processor licensee would have grounds to seek legal recourse to force the generator to take possession of the treated LLW. However, if a threat to the public health and safety were to present itself at any time as a result of a reactor licensee's refusal to accept waste from a processor shipped off-site for processing, NRC would use its authority to compel the appropriate party to take possession of the waste, and store it safely.

Comment: One commenter suggested that a loophole in the Low-Level Radioactive Waste Policy Act of 1980 allows a licensee to forward a shipment of radioactive material to another State to be stored or treated, and then avoid all responsibility for disposal of the material by declaring the material a waste. The 1980 Act places the receiving State in an untenable position by requiring it to provide disposal capacity for wastes its licensees become burdened with in this manner.

Response: The 1980 Act encourages States to form regional compacts to collectively provide for disposal capacity of LLW. These compacts, authorized by Congress, were allowed to exclude waste generated outside their borders, beginning January 1, 1986. This date was later extended to January 1, 1993, when Congress approved the Low-Level Radioactive Waste Policy Amendments Act of 1985. The 1985 Act further authorizes that each State shall provide disposal capacity for LLW " * * * generated within * * * " the State. Accordingly, generators who ship radioactive material out-of-state for processing, and then declare that material to be LLW, will likely be unable to shift responsibility for the disposal of their waste. Therefore, the Commission does not consider this to be a significant issue, nor one which is affected, in any way, by the final rule.

Comment: One commenter suggested that the rule clarify considerations for non-reactor licensees concerning receipt of waste back at their facilities after processing.

Response: The Commission has drafted the final rule to apply to reactor licensees, only. Reactor licensees have reported that processor licensees are

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unwilling to accept reactor-generated waste without some assurance that reactor licensees will be authorized to receive back processed LLW initially generated at the reactor facility. Currently, no problems have been identified concerning parts 30, 40, and 70 licensees and the return of processed LLW to their facilities. The Commission can address this issue in the future if parts 30, 40, and 70 licensees encounter problems in this area.

Comment: One commenter noted that currently available on-site volume-reduction technology is more cost-effective than the "double-handling" mandated by off-site processing.

Response: This rule does not mandate off-site processing. The licensee is free to evaluate the cost effectiveness of a given technology or process and choose either on-site or off-site processing.

Comment: Two commenters suggested that the rule be decided in conjunction with the proposed rule on export and import of radioactive waste. Commenters were concerned that wastes may be imported for disposal from NRC licensees operating abroad.

Response: The Commission does not agree that these concerns are applicable to the final rule. The Commission does not believe the final rule will have any impact on the proposed rule on export and import of radioactive waste, nor will the proposed rule on export and import of radioactive waste impact this rulemaking.

Comment: Two commenters argued that the implications of the rule are uncertain in the aftermath of the Supreme Court's decision rejecting the "Take Title" provision of the LLRWPA. One commenter asked whether States, under the proposed rule and in light of the Supreme Court's decision in *New York v. United States*, could refuse to allow interim on-site LLW storage.

Response: On June 19, 1992, the U.S. Supreme Court issued its decision on the New York challenge to the constitutionality of the LLRWPA. Although the Supreme Court decision, in this case, is currently being evaluated for its possible general impact on the management of LLW in this country, the Supreme Court decision does not impact the final rule.

Comment: One commenter expressed concerns that volume reduction of a "source" containing some intrinsic value would lose its remaining value after being compacted to reduce the volume of the waste.

Response: The Commission does not believe this issue is pertinent to the final rule.

Comment: One commenter in Florida expressed concern that the proposed amendment would allow nuclear power plants, including Turkey Point in Florida, to store LLW on-site for an indefinite period. The commenter believes that South Florida's unique hydrology and geology raise serious questions about its suitability for storage of LLW. The commenter states that any decisions by NRC to allow LLW to be stored at reactor sites should be made on a site-specific basis and that an environmental impact statement (EIS) should be prepared under the National Environmental Policy Act (NEPA) for Turkey Point, because the original EIS (in 1972) did not address storage of LLW. One commenter, from Michigan, expressed concern that, given the importance of the Great Lakes, nuclear power plants in the Great Lakes area be phased out so that no further waste accumulates.

Response: Current reactor license conditions allow licensees to store wastes generated in the operation of the reactor. While the rule authorizes reactor licensees to receive back waste shipped off-site for processing, the final rule makes no changes to existing requirements concerning storage of LLW, nor does it modify waste processing or transportation requirements. Site-specific concerns associated with storage of wastes authorized under terms of existing licenses should be addressed on a case-specific basis.

Finding of No Significant Impact: Availability

The Commission previously determined that the selected action was of the type described in the categorical exclusion of 10 CFR 51.22(c)(2). After having received several comments addressing the transport and storage of processed LLW, however, the Commission has chosen to conduct an environmental assessment pertaining to these environmental concerns and the consequences of the proposed rule.

The Commission has determined, under the National Environmental Policy Act of 1969, and the Commission regulations in subpart A of 10 CFR part 51, that this rule would not be a major Federal action significantly affecting the quality of the human environment and therefore, an environmental impact statement is not required. The handling and temporary storage of concentrated waste will not significantly increase risks to workers or the public. Similarly, this rule will not pose significant risks to the public or the environment resulting from additional miles traveled by radioactive wastes on our Nation's

highways. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection and/or copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Richard H. Turtill, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 504-3447.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

The Commission has considered alternatives to, as well as the costs and benefits of, the final regulation. There is no alternative to amending the regulations that would satisfy questions concerning the legality of transfer on a generic basis. The final regulation will not impose any additional cost nor burden on a licensee or other individual. The final rule is intended to facilitate actions necessary to ensure that licensees will have adequate short-term on-site storage capacity for LLW, until permanent disposal is available. The Commission does not look favorably on long-term on-site storage. The foregoing constitutes the regulatory analysis for the final rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The rule does not affect small entities. The final regulation is entirely permissive in nature and will predominately affect large entities, nuclear power reactor licensees, and persons who provide volume-reduction services to these licensees.

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions that would impose backfits, as defined in 10 CFR 50.109(a)(1).

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List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, NRC is adopting the following amendment to 10 CFR part 50.

57 FR 53191
Published 11/6/92

10 CFR Part 50

[3150-AE04]

Receipt of Byproduct and Special Nuclear Material

Correction

In rule document 92-25504 beginning on page 47978 in the issue of Wednesday, October 21, 1992, make the following corrections:

1. On page 47979, in the 3d column:
 - a. In the 14th line, "of" should read "or".
 - b. In the second complete paragraph, in the 15th line, "authority" should read "authorized".
2. On page 47980, in the first column, in the 4th line, "license" should read "licensee".
3. On page 47982, in the second column, in the second paragraph, in the second and third lines, delete "to store wastes" the first time it appears.

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

57 FR 61785
Published 12/29/92
Effective 12/29/92

Material Approved for Incorporation by Reference; Maintenance and Availability

See Part 35 Statements of Consideration

58 FR 21904
Published 4/26/93
Effective 5/26/93

10 CFR Parts 50 and 52
RIN 3150-AD80

Training and Qualification of Nuclear Power Plant Personnel

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to require each applicant for and each holder of a license to operate a nuclear power plant to establish, implement, and maintain a training program for nuclear power plant personnel based on a systems approach to training (SAT). The training program will provide qualified personnel to operate and maintain the nuclear power

plant in a safe manner in all modes of operation. This action is being taken to meet the directives of section 306 of the Nuclear Waste Policy Act of 1982.

EFFECTIVE DATE: May 28, 1993.

ADDRESSES: Copies of all referenced NRC documents are available for public inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC 20555. Copies of NUREG documents may be purchased from the Superintendent of Documents, U.S. Government Printing Office by calling (202) 275-2060, or by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

FOR FURTHER INFORMATION CONTACT: Dr. Rajender Auluck, P.E., Office of Nuclear Regulatory Research, telephone: (301) 492-3794 or Mary Ann Biamonte, Office of Nuclear Reactor Regulation, telephone: (301) 504-1073, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

SUPPLEMENTARY INFORMATION:

Background

Nuclear Waste Policy Act of 1982

In section 306 of the Nuclear Waste Policy Act of 1982 (NWPA), Public Law 97-425, the NRC was "directed to promulgate regulations, or other appropriate Commission regulatory guidance for the training and qualifications of civilian nuclear power plant operators, supervisors, technicians and other operating personnel. Such regulations or guidance shall establish * * * instructional requirements for civilian nuclear power plant licensee personnel training programs." In order to meet this directive, on March 20, 1985, the Commission published a Policy Statement on Training and Qualification of Nuclear Power Plant Personnel (50 FR 11147). The policy statement endorsed a training accreditation program managed by the Institute of Nuclear Power Operations (INPO). It encompassed the elements of effective performance-based training and provided the basis to ensure that

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personnel have qualifications commensurate with the performance requirements of their jobs.

In addition to endorsing the INPO-managed training accreditation program, the 1985 Policy Statement also recognized the INPO-managed accreditation of utility training programs for the following categories of nuclear power plant personnel:

- (1) Non-licensed operator.
- (2) Control room operator.
- (3) Senior control room operator/shift supervisor.
- (4) Shift technical advisor.
- (5) Instrument and control technician.
- (6) Electrical maintenance personnel.
- (7) Mechanical maintenance personnel.
- (8) Radiological protection technician.
- (9) Chemistry technician.
- (10) On-site technical staff and managers.

While issuing the policy statement, the Commission decided to defer rulemaking in this area for a minimum of 2 years in order to allow the industry to continue its initiatives to upgrade training programs through the INPO-managed training accreditation program. Following issuance of the policy statement, the NRC evaluated the INPO-managed training accreditation program over a 2-year period and concluded that it was an effective program. On November 18, 1988 (53 FR 466073), the NRC published an amended policy statement in order to:

- (1) Provide additional information regarding the NRC's experience with industry accreditation,
- (2) Change the policy regarding enforcement to eliminate discretion in inspection and enforcement in the areas covered by the 1985 Policy Statement, and
- (3) Reflect current Commission and industry guidance.

The NRC continues to perform inspections at different utilities to ensure that these training programs remain effective.

U.S. Court of Appeals Decision

On April 17, 1990, the U.S. Court of Appeals for the District of Columbia Circuit concluded that the Commission's Policy Statement did not meet the intent of the Congressional directive to create mandatory requirements for personnel training programs at civilian nuclear power plants. The Court remanded the issue back to the NRC for action consistent with the Court's findings. See, *Public Citizen v. NRC*, 901 F.2d 147 (DC Cir. 1990). The Commission requested a rehearing of the decision by the full

court, which was denied on June 19, 1990. On November 28, 1990, the Supreme Court denied certiorari on petition by the Nuclear Utility Management and Resource Council. See, *Nuclear Management and Resources Council, Inc. v. Public Citizen* 111 S. Ct. 536 (1990).

Actions Taken in Response to the Court Decision

In response to the court decision, the NRC developed the proposed rule that would amend 10 CFR parts 50 and 52, entitled "Training and Qualification of Nuclear Plant Personnel." The proposed rule was published in the *Federal Register* on January 7, 1992 (57 FR 537). The amendments would require that each applicant for and each holder of a license to operate a nuclear power plant establish, implement, and maintain a training program for nuclear power plant personnel that provides qualified personnel to operate and maintain the facility in a safe manner in all modes of operation. The proposed rule met the directives contained in section 306 of the Nuclear Waste Policy Act of 1982 (NWPA), Public Law 97-425, as interpreted by the U.S. Court of Appeals for the District of Columbia Circuit, that mandatory requirements be established for the training and qualification of personnel at civilian nuclear power plants.

The proposed rule would require training programs that are derived from a systematic analysis of job performance requirements that can include both site-specific and industry-wide experiences. Current industry training programs have been developed consistent with this approach. Based on monitoring industry training programs since the 1985 Policy Statement went into effect, the NRC has concluded that these programs have been generally effective in ensuring that personnel have qualifications commensurate with the performance requirements of their jobs.

Summary and Analysis of Public Comments

The comment period for the proposed rule expired March 9, 1992. Public comment letters received on the proposed rule are available for public inspection and copying for a fee at the Commission's Public Document Room. Comments were received from 30 individuals and corporate entities, virtually all of whom are directly involved in the nuclear power industry. Many of the letters contained similar comments and have been grouped together and addressed as a single issue. All comments have been grouped into eight broad issues. For each broad issue,

the NRC has included a summary of the comments received and an analysis and response to those comments.

1. Responsibility for Training and Acceptability of Third-Party Training-Accreditation Programs

Comment. Several commenters indicated that the NRC should clarify who under the proposed requirements will have responsibility for training contractor personnel. Given the proposed rule's requirement that training programs be based on a systems approach to training, they indicated that the NRC should clarify its intention regarding the acceptability of licensees relying on third-party training programs other than INPO-managed training accreditation-certification programs in evaluating the training needs and qualifications of personnel. The Radiation Protection Association's program of registration-certification of Health Physics Technicians was cited as an example of an other than INPO-managed training accreditation-certification program that the Commission should explicitly endorse. Commenters also indicated that the NRC should clarify that if the evaluation of personnel does not indicate that additional training is needed (i.e., they are already qualified), then additional training is not required. Finally, commenters questioned whether the NRC has developed acceptance criteria for licensees to use in determining the acceptability of vendor-developed and other third-party training programs, and if the NRC anticipated deriving such criteria from NUREG-1220.

Response. The intent of the rule is to ensure that nuclear power plant personnel have the necessary knowledge, skills, and abilities to perform their assigned jobs competently; i.e., they are qualified to independently perform specific activities. Therefore, it is the responsibility of each licensee and applicant to ensure that personnel specified by the rule, regardless of whether they are employees or contractors, are qualified.

The requirement that each licensee or applicant develop, implement, and maintain a SAT-based training program is applicable only to licensee personnel, not contractors, and establishes a process that provides a high degree of assurance that personnel will be qualified to perform their assigned duties. This assurance arises from the five major elements of the SAT process: (1) Analysis of job performance requirements and training needs; (2) derivation of learning objectives; (3) design and implementation of the

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training programs; (4) trainee evaluation; and (5) program evaluation and revision. Training is only required when a comparison of job performance requirements for tasks being assigned and the skills and knowledge of a specific person indicate a training need. Third-party (including vendor-developed) training programs, although not specifically endorsed by the NRC, are acceptable provided that the licensee has evaluated the programs to ensure that they will result in proper qualification. Because the acceptability of vendor-developed programs will vary based on individual facility needs, the NRC is not providing specific acceptance criteria. Licensees should evaluate vendor-developed training programs against the facility's job and task analysis results to ensure that the vendor programs will meet the licensee's specific qualification requirements.

2. Appropriateness of SAT-Based Training

Comment. Numerous commenters questioned the appropriateness of requiring SAT-based training. At the most basic level was a concern that the NRC has not placed sufficient emphasis on the fact that the required SAT-based training is not intended to be a simple "cookbook" approach and that personnel should be encouraged to acquire additional knowledge, training, and academic instruction to give them a deeper understanding of the technical principles underlying their training. A more widely held concern was that the proposed rule could be construed as requiring additional rigorous job and task analysis, particularly since NRC Inspection Procedure 41500 is more restrictive in this area than the current requirements for INPO-managed training accreditation. These commenters noted that the job and task analysis is not necessarily appropriate or sufficient for all of the types of personnel covered by the rule. They requested that the NRC explicitly acknowledge that varying degrees of rigor in the performance of job and task analysis are appropriate for differing types of positions, as are analyses completed through cooperative generic industry efforts. Specifically, it was recommended that training programs affecting the Shift Supervisor, Shift Technical Advisor, and Technical Staff and Managers be allowed and encouraged to rely on additional bases for determining training needs and that Inspection Procedure 41500 and NUREG-1220, "Training Review Criteria and Procedures," be revised to make them fully consistent with current

INPO guidance. Finally, one commenter noted that SAT-based training is inconsistent with the requirements in 10 CFR part 55 for licensed operators and requested that the NRC explain why it has determined that only SAT-based training is acceptable.

Response. The Commission shares the concern that SAT-based training not be treated in a "cookbook" manner. It is not the intent of the NRC that the industry simply approach the SAT-based program in a "cookbook" manner, since the NRC does not intend to discourage licensees from imposing additional requirements above those developed from the SAT-based training program. The decision to require SAT-based training programs reflects both the industry's success with this approach and the fact that the process has the advantage of incorporating ongoing review and revision of the program to reflect changing needs.

Additional rigorous job and task analysis will not be required for any of the positions listed in this rule. The NRC has monitored and evaluated the development and implementation of the current industry programs. The NRC believes that the job, task, and needs analyses underlying the currently accredited programs are adequate, as are the criteria that are used in determining the acceptability of programs for future accreditation. In order to clarify its position that additional job and task analyses are not being required, the NRC has revised Inspection Procedure 41500 and NUREG-1220 to make them consistent with this regulation.

The NRC recognizes that 10 CFR part 55, which only applies to licensed operators, allows non-SAT based approaches to training. This provision was necessary to accommodate existing industry programs for training licensed operators at the time part 55 was promulgated, because industry-wide implementation of SAT-based training was not complete. At this time, SAT-based training has been broadly implemented by the industry for both licensed operators and other plant personnel. Virtually all of the initial and requalification programs for licensed operators are SAT-based. The NRC believes that, based on SAT's success and its wide use by industry, that it is appropriate to incorporate SAT-based training as a requirement in this rule.

3. Definition of Personnel To Be Trained

Comment. A number of both general and specific comments were received that addressed the issue of the definition of the personnel that would be covered by the proposed rule. Some held the view that the specification of

the personnel covered by the proposed rule was too narrow while others believed it was too broad. Some commenters recommended that the proposed rule cover all personnel who perform or oversee design, operation, or maintenance activities regardless of whether they are physically located on-site or off-site. At the same time, the commenters indicated that the proposed rule should explicitly exclude all personnel who, regardless of location, only perform support services. In addition, the commenters indicated that personnel working under direct supervision, such as short-term contractor personnel, should be excluded from these training requirements. More concretely, numerous commenters requested that the proposed rule be clarified in terms of personnel to be trained. For example:

Is a "Radwaste Operator" to be considered a "Non-Licensed Operator"? Does "Shift Supervisors" include "Assistant Shift Supervisors"? While the job title "I&C Technicians" is precise, "electrical personnel" and "mechanical personnel" appear to be broader than "electricians" and "mechanics." Which functions or personnel are included in on-site technical staff?

Finally, a number of commenters noted that to be consistent with INPO's current accreditation program, managers should not be included in the rule. This could be accomplished by amending § 50.120(b) so that the personnel designated as (9) "Technical Staff and Managers" be designated "Engineering Support Personnel." Almost all the commenters seeking clarification of the personnel to be trained recommended that the regulation explicitly state that it applies only to the training programs currently included in the INPO accreditation program.

Response. The scope of the list of personnel is consistent with and incorporates those positions that are currently covered by accreditation and existing industry practice. The NRC believes that the existing training programs for the personnel listed are satisfactory. For these reasons, the NRC does not believe it is appropriate to revise the scope of the regulation. The shift supervisor position is the only supervisory function included within the scope of the rule and does not include the assistant shift supervisor. However, the regulation has been revised to reflect a change from the title of the "on-site technical staff and managers" category to "engineering support personnel," which is now consistent with the name for the corresponding INPO accredited training

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program. The scope of the personnel covered by that program to be trained in accordance with this regulation, however, is unchanged.

The NRC does not believe that a change to the rule is needed in order to clarify the applicability of this rule to short-term contractor personnel. Contractor personnel are not covered by this rule unless they occupy regular positions working independently within the licensee's organization. However, if short-term contractor personnel are assigned to work independently, they must be qualified to perform the assigned tasks. Finally, the issue of including off-site personnel in the final rule has been considered. The NRC has concluded that the requirements apply to job functions in the identified categories of personnel relating to on-site activities regardless of the location of the personnel.

4. Relationship Between Training and Qualification

Comment. One commenter expressed concern that the relationship between training and qualification has been blurred. The commenter indicated that while the proposed rule is entitled "Training and Qualification of Nuclear Power Plant Personnel," the requirements appear to relate to training only. It was recommended that the term qualification be eliminated, or, alternatively, that necessary qualifications be explicitly listed. The commenter also indicated that the NRC should clarify that successful completion of a training program is not in and of itself sufficient, in lieu of any specific qualifications imposed by other regulations, for a particular position.

Response. The NRC disagrees that the distinction between training and qualification has been blurred by the rule. As stated in the preamble for the proposed rule, qualification in the context of this rule means job task qualification. The proposed rule contained the requirement that licensees and applicants develop, implement, and maintain a SAT-based training program to ensure that nuclear power personnel are qualified to perform the tasks of their jobs. Because licensees and applicants must comply with all applicable regulations, there should be no ambiguity concerning the fact that successful completion of a training program does not obviate the need to comply with any other training or qualification requirements imposed by other regulations or license conditions. This means that nuclear power plant personnel must also meet the licensees' initial job qualification requirements imposed as part of initial employment.

Therefore, no changes were made to the rule in response to this comment.

5. Applicability of the Rule

Comment. Several commenters expressed the opinion that the applicability of the rule was too broad with respect to licensees who are undergoing decommissioning or are part 52 applicants. Specifically, they recommended that the rule apply only to applicants for or licensees with an operating license. The commenters suggested that facilities engaged in decommissioning where all fuel has been permanently removed from the reactor vessel or those with a possession only license (POL) should not be subject to this rule. Additionally, they questioned why part 52 needed to be amended to include the requirements of § 50.120(b), since the provisions of part 52 already automatically incorporate all of the standards in part 50 that are technically relevant.

Response. The NRC believes that making the provisions of the rule applicable to all part 50 licensees and applicants is appropriate. The SAT-process ensures that as plant conditions change, training programs will be revised to reflect these changes. These revisions could include the development of new programs or the elimination of obsolete programs. However, the process also ensures that the modification of the program to reflect the changed environment is performed in an orderly fashion. If permanent changes in the condition of the plant (i.e., decommissioning or POL) make some or all existing training programs unnecessary, the licensee would obtain relief from these requirements by applying for an exemption eliminating or modifying the affected programs. Also, the reason that 10 CFR part 52 needs to be amended is to ensure that part 52 applicants have considered the requirements of 10 CFR 50.120(b) in their applications.

6. Implementation of the Rule

Both general and specific concerns were raised regarding implementation of the rule, the time periods allowed for implementation, and the means to be used by licensees to demonstrate compliance of a training program that is not accredited by the INPO-managed training accreditation program.

(a) General Concerns

Comment. Numerous commenters expressed concerns regarding the manner in which the NRC will monitor implementation of the rule to ensure that it is consistent with the Commission's intentions and that the

guidance provided by the NRC and INPO is consistent. Specifically, it was recommended that the Commission carefully monitor the implementation of the final rule to ensure a consistent understanding of the regulatory goals as was identified in SECY-91-172, "Regulatory Impact Survey—Final." In addition it was suggested that the principles in the Staff Requirements Memorandum dated December 20, 1991, regarding the Systematic Assessment of Licensee Performance (SALP) program should be applied to this training rule. Commission monitoring of the training rule would ensure that there is intra- and inter-regional consistency in the requirements, evaluation criteria, and results, and would preclude the imposition of additional requirements based on rising expectations. Commenters indicated that the NRC should clarify the process that INPO and the NRC will use to avoid giving licensees conflicting guidance. Commenters indicated that the NRC should explicitly state that maintenance of an accredited training program will be construed as complete compliance with these training requirements. Other commenters indicated that NRC should consider delaying the effective date of the rule until it has completely reviewed implementing guidance (e.g., Reg. Guide 1.8, Rev. 2) and made it consistent with the final rule.

Response. The NRC believes that the requirements and implementation of this rule will be consistent with the accredited programs already developed and implemented by the industry. Therefore, the policy the Commission expects to follow in implementing the rule is that continued accreditation along with effective implementation of the accredited program is considered to be an acceptable means of demonstrating compliance. This conclusion is based on staff inspections which have found the accredited programs to be generally acceptable, and the NRC review of documents that provide the industry program objectives and criteria. An applicant or licensee could also comply with the requirements of this rule without being accredited. Inspection Procedure 41500 and NUREG-1220 have been revised to make them consistent with this regulation. This guidance will be used by the NRC staff when monitoring implementation of this rule or inspecting training programs and is intended to ensure consistent interpretation of training criteria by all NRC regions. The NRC, therefore, does not intend to revise Reg. Guide 1.8.

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(b) Implementation Period

Comment. With regard to the specific time frames allowed for implementation, several commenters expressed the opinion that if the rule is truly consistent with established programs, that an implementation period of 180 days was reasonable. However, other commenters stated that additional time should be granted to accommodate the industry's implementation date of December 31, 1993, for the new "Engineering Support Personnel" accredited program and for the review and documentation activities that are believed by the commenters to be necessary to demonstrate compliance with the rule. Similarly, many believed that the requirement in § 50.120(b) that applicants must have established and implemented the required training program 18 months prior to fuel load is not reasonable, given that the accreditation process for training programs provides for verification and revision of training programs based on experience gained from operations. It was recommended by several commenters that applicants simply be required to have training programs established and ready for accreditation prior to initial fuel load. Finally, several commenters noted that linking the required program review and revision cycle to the industry's current 4-year schedule is unnecessarily prescriptive.

Response. The NRC has considered the issues raised by the commenters regarding the appropriate implementation time periods for both licensees and applicants. For licensees, the Commission believes that the 180-day implementation period is sufficient, because all licensees have developed, implemented, and are maintaining accredited programs. Implementation of the new "Engineering Support Personnel" program, which replaces the current "Technical Staff and Managers" program or other future accredited program changes, does not negate the fact that SAT-based training is continuing for the personnel covered by the rule, therefore, compliance with the regulation would be maintained.

The requirement that applicants establish and implement the training program 18 months prior to fuel load is also considered appropriate. The NRC realizes that an applicant would not have a training program accredited 18 months prior to fuel load, and this rule does not require accreditation. The rule only requires that a training program be established for those portions of the plant programs necessary to support ongoing activities covered under the rule. In addition, the NRC believes that

having the SAT-based training program in place prior to fuel load allows significant benefits in terms of program review and revisions based upon experience gained prior to fuel loading.

The NRC concurs that linking the program review-revision cycle to existing practice (i.e., a 4-year accreditation-renewal cycle) is unnecessarily prescriptive, therefore reference to specific 4-year review cycle has been deleted from the supplementary information section of the final rulemaking notice.

(c) Review and Recordkeeping Requirements

Comment. Several commenters requested that the NRC clarify the requirements for recordkeeping and for program reviews and revisions. Specifically, the NRC was requested to clarify (1) what records need to be maintained in order to meet the requirements of § 50.120, (2) whether any special retention periods apply to these records, and (3) what "associated programs" must be readily auditable, or that this language be dropped from the discussion. They also requested that NRC clarify the rule so that it is clear that the periodic reviews of training programs are to be conducted by appropriate functional managers, not just training managers.

Response. The records the licensees will need to maintain to meet the requirements of § 50.120 are the same records currently being maintained by licensees for their existing training programs. The proposed rule does not impose any special retention periods for these records. The words "associated programs" will be deleted from the discussion related to being readily auditable. The final rule does not require clarification since the proposed rule notes "licensee management," which NRC takes to include functional line managers.

(d) Demonstration of Compliance

Comment. The NRC should clarify how compliance with the rule is to be demonstrated by facilities without an accredited program.

Response. An accredited program is considered to be an acceptable means of demonstrating compliance with the rule. Facilities that do not have an accredited program would demonstrate compliance with the final rule through the development of training programs using the systems approach to training as defined in 10 CFR 55.4. The NRC will conduct inspections of non-accredited facility programs to ensure that the requirements of the final rule are met.

7. Recommend That the Commission Try One More Time To Reverse the Court Decision

Comment. Most commenters expressed their strong opinion that the rule is unnecessary given the industry's initiatives in developing and implementing effective training programs, but accept the rule as necessary given the Court's decisions. However, one commenter requested that, given the President's January 28, 1992, directive that agencies are to "identify and accelerate action on initiatives which will eliminate any unnecessary regulatory burden," the Commission seek, through the Executive Branch, if necessary, a judicial review of the Court's ruling.

Response. The Commission believes that the President's directive does not supersede the Court's ruling and the NRC has exhausted all reasonable avenues of judicial review.

8. Reconsideration of Other Training Requirements in Light of This Rule

Comment. One commenter requested that the NRC review part 55 in its entirety to ensure that it is consistent with this rule, stating that it is possible that many of the prescriptive requirements in existing part 55 could be eliminated if it were amended to reflect existing industry practice for identifying the need for and developing training programs.

Response. Part 55 currently states that a SAT-based training program and a certified simulator is an acceptable alternative to the prescriptive requirements of part 55 and would meet the existing requirements for licensed operator training. In fact, most of the initial and requalification programs for licensed operators are based on SAT. Thus, part 55 is consistent with this rule. Furthermore, some programs retain elements of the prescriptive portion of 10 CFR part 55 and to eliminate these elements would create an unnecessary perturbation to these programs.

Discussion

The safety of nuclear power plant operations and the assurance of general public health and safety depend on personnel performing at adequate performance levels. The systematic determination of qualifications and the provision of effective initial training and periodic retraining will enhance confidence that workers can perform at adequate performance levels. Qualification in the context of this rule means that nuclear power plant personnel have completed the training program, or parts thereof, as evidenced

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by meeting the job performance requirements, and are permitted to independently perform specific activities. The Commission has taken an approach in this rule that would specify the process to be implemented by applicants and licensees through which job performance criteria and associated personnel training would be derived. This approach provides for flexibility and site-specific adaptations in the training programs. No additional cost is anticipated with this approach for licensees with accredited programs because the rule is believed to be consistent with existing industry practice for personnel training.

Summary of Final Rule

Each applicant for and each holder of an operating license for a nuclear power plant shall:

- (1) Establish a training program for certain nuclear power plant personnel who perform operating, maintenance, and technical support activities;
- (2) Use a systems approach to training;
- (3) Incorporate instructional requirements to provide trained and qualified personnel who can safely operate the facility in all modes of operation;
- (4) Periodically review, evaluate, and revise the training program; and
- (5) Maintain sufficient records, available for NRC inspection, to verify the adequacy of the training program.

Although no written response is required, licensees are expected to review their license conditions and other commitments for consistency with this rule.

The Commission has also developed conforming amendments to 10 CFR parts 50 and 52 to accompany this rule. Part of these amendments to parts 50 and 52 are considered minor. The other change to part 52 is more substantive and has been developed to ensure that applicants for a combined license (construction and operation) will establish, implement, and maintain a training program in accordance with the requirements in 10 CFR 50.120. This rule is not intended to preclude vendor training programs developed in conjunction with standardization of design.

Discussion of Final Rule

A new § 50.120, has been added to 10 CFR part 50, entitled "Training and qualification of nuclear power plant personnel."

This section establishes the requirements for and the essential elements of the process to be used by applicants and licensees to:

- (1) Determine training and qualification requirements for all appropriate personnel;
- (2) Develop training programs to ensure that each licensee has trained and qualified personnel to operate and maintain the facility in a safe manner; and
- (3) Implement and maintain these programs effectively on a continuing basis.

Paragraph (a), "Applicability," indicates that the rule applies to each applicant for and each holder of an operating license for a nuclear power plant.

Paragraph (b), "Requirements," requires that each applicant or licensee establish, implement, and maintain a program for training nuclear power plant personnel which addresses all modes of operation and is derived from a systems approach to training (SAT). The SAT process was selected because it has the following characteristics:

- (1) Training design and content are derived from job performance requirements;
- (2) Training is evaluated and revised in terms of job performance requirements and observed results on the job;
- (3) Success in training can predict satisfactory on-the-job performance; and
- (4) A training program can be audited because it involves clearly delineated process steps and documentation.

The SAT process contains five major elements and is intended to require a training system that will ensure successful performance on the job by trained individuals. The elements are:

- (1) Analysis of job performance requirements and training needs;
- (2) Derivation of learning objectives;
- (3) Design and implementation of the training programs;
- (4) Trainee evaluation;
- (5) Program evaluation and revision.

The SAT process also provides a sequential method of generating the type of documentation needed for training review. Use of SAT will obviate the need for additional documentation for NRC review.

The SAT process is a generic process, and its application is not limited to a certain subject matter or to specific licensee personnel. Training programs based on job performance requirements have been successfully used by the military for over 20 years and by the nuclear industry for much of the past decade. Furthermore, the Commission has recognized the appropriateness of using this approach to training in its requirements for operator licensing prescribed in § 55.31(a)(4), and for operator requalification prescribed in § 55.59(c).

This rule would provide for the training and qualification of the following nuclear power plant personnel:

- (1) Non-licensed operator.
- (2) Shift supervisor.
- (3) Shift technical advisor.
- (4) Instrument and control technician.
- (5) Electrical maintenance personnel.
- (6) Mechanical maintenance personnel.
- (7) Radiological protection technician.
- (8) Chemistry technician.
- (9) Engineering support personnel.

Licensed operators, such as control room operators and senior control room operators, are not covered by this rule. They will continue to be covered by 10 CFR part 55 for both initial and requalification training. Because some senior control room operators may also be shift supervisors, only those aspects of training related to their shift supervisor function would be covered by this rule.

This rule would require that training programs be periodically evaluated and revised as appropriate, and also be periodically reviewed by management for effectiveness. Current industry objectives in this regard involve the evaluation by management of individual training programs on a continuing or periodic basis to identify program strengths, weaknesses, and effectiveness. These evaluations are normally completed within a 3- to 6-month period following completion of training within the programs. The sum of these evaluations results in a comprehensive review. Periodic evaluations of the overall training programs are being performed by the industry as part of accreditation renewal. The Commission expects this practice to continue.

Determination of job performance requirements and training needs is part of the analysis in the SAT process and is reflected in qualification requirements. The facility applicant or licensee will be responsible for ensuring that all personnel within the scope of this rule have the training and resulting qualifications commensurate with job performance requirements for their assigned tasks. Initial and continuing training, as appropriate, is expected to be provided to job incumbents in positions covered by this rule.

Each applicant and licensee is required to maintain and keep available for NRC inspection the materials used to establish and implement required training programs for the affected personnel. Current industry practice in this regard involves retention of those records necessary to support management information needs and to

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provide required historical data. In general, these include records of program development, evaluation, and revision related to the existing training program. The NRC has found through inspections of training programs that sufficient records are being retained for periods that are adequate for regulatory purposes. The Commission believes that no additional guidance for recordkeeping is necessary.

No written response is required by this rule. However, applicants and licensees would be expected to compare their current training commitments and licensing bases with the requirements of this rule. Licensees should use the results of this comparison to evaluate and revise, as appropriate, existing technical specifications or previous commitments. This approach will ensure a common understanding between applicants, licensees, and the NRC staff of training commitments when future inspections are conducted.

Impact of This Rule on Existing Industry Training Programs

This rule would supersede the Policy Statement on Training and Qualification of Nuclear Power Plant Personnel. The Commission believes that this rule would not result in any change to accredited training programs. The NRC has found through inspections that the programs are generally acceptable. The Commission expects that training programs accredited and implemented consistent with the industry program objectives would be in compliance with the requirements of this regulation.

An existing Memorandum of Agreement between INPO and the Commission assures that the NRC will be made aware of any modifications or updates to the industry's program objectives and criteria. Having seen such modifications, the NRC will review to determine if they warrant any modification in the Commission's position expressed above. The NRC will continue to monitor the industry accreditation process by:

- (a) Nominating individuals who are not on the NRC staff to serve as members of the National Nuclear Accrediting Board with full voting privileges;
- (b) Having an NRC staff member attend and observe selected National Nuclear Accrediting Board meetings with the INPO staff or the utility representatives;
- (c) Having NRC staff observe selected INPO accreditation team site visits;
- (d) Reviewing any subsequent revisions to the program objectives and criteria as currently described in the National Academy for Nuclear Training

document "The Objectives and Criteria for Accreditation of Training in the Nuclear Power Industry" (ACAD 91-015);¹ and

(e) Verifying licensee programs through the NRC inspection process.

As noted above, the NRC has the ability to verify compliance with this regulation through the inspection program and will do so as appropriate. In its inspections, the NRC staff will use Inspection Procedure 41500, "Training and Qualification Effectiveness," which references the guidance in NUREG-1220, Revision 1,² "Training Review Criteria and Procedures." Based on NRC inspections conducted to date, the Commission believes that the objectives developed by the industry provides sufficiently clear guidance to allow applicants and licensees to implement effective training programs in compliance with this rule. Therefore, the Commission does not believe it is necessary to issue a regulatory guide to provide additional guidance for complying with this rule.

Vendor-Developed Programs for Standardized Plants

In 10 CFR part 52, the Commission articulated the goal of safety through standardization of design. The Commission believes that the benefits of standardization could involve the standardization of some types of training associated with the 10 CFR part 52 design certification. Therefore, nothing in this rule is intended to preclude standard training programs being developed or implemented by a vendor. For example, the initial training for instrument and control technicians related to a particular standard design may be conducted by a vendor. As a result, there could be a pool of technicians trained by the vendor on the certified design available for hire at a nuclear power plant site. These personnel, however, would need to complete site-specific training related to the administrative and operating philosophy of the site as well as any other specific requirements of the licensee.

Thus, the requirements for personnel training programs prescribed by

§ 50.120 do not prevent a vendor from training personnel or from developing a training process. However, it is important to note that vendor training programs are not governed by this rule and that the licensee is ultimately responsible for ensuring that personnel are qualified.

Applicants for a Combined License

Part 52 is being amended to require that applicants for combined licenses establish, implement, and maintain training programs in accordance with the requirements in 10 CFR 50.120.

Criminal Penalties

As a result of the addition of § 52.78 by this rulemaking, the criminal penalty provision, § 52.113, is being modified to add § 52.78 to the list of sections in subsection (b), since the new section is not identified as substantive, as that criterion is expressed in the Federal Register Notice: Clarification of Statutory Authority for Purposes of Criminal Enforcement, 57 FR 55062 (November 24, 1992). In addition, § 52.101 is deleted and § 52.103 is added to the list, to reflect changes made to part 52 in a previous rulemaking, 57 FR 60978 (December 23, 1992).

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. Numerous studies have shown that in complex man-machine systems, human error has often been the overriding contributor to actual or potential system failures that may be precursors to accidents. With this rulemaking, the NRC is emphasizing the need to ensure that industry personnel training programs are based upon job performance requirements. Personnel who are subjected to training based on job performance requirements should be able to perform their jobs more effectively, and with fewer errors. Therefore, the environmental effect of implementing this rule would, if anything, be positive because of the reduction in human error. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC 20555. Single

¹ A copy of ACAD 91-015 is available for public inspection or copying at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

² Copies of NUREG-1220, Rev. 1 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for public inspection or copying at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

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copies of the environmental assessment and finding of no significant impact are available from Rajender Auluck, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 492-3794.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget approval numbers 3150-0011 and 3150-0151.

Public burden for update and maintenance of information is estimated to average 780 hours per utility per year, including the time for reviewing the present program, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

A regulatory analysis has been prepared for this final regulation. The analysis examines the values (benefits) and impacts (costs) of implementing the regulation for personnel training and qualification. This analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW., (Lower Level), Washington, DC 20555. Single copies of the analysis may be obtained from Rajender Auluck (see ADDRESSES heading).

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1989, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. This final rule primarily affects the companies that own and operate light-water nuclear power reactors and the vendors of those reactors. The companies that own and operate these reactors do not fall within the scope of the definition of "small entity" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small

Business Administration in 13 CFR part 121.

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because these amendments are mandated by section 306 of the Nuclear Waste Policy Act of 1982, 42 U.S.C. 10226. Therefore, a backfit analysis is not required for this rule.

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Nuclear Waste Policy Act of 1982, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 50 and 52 as follows:

58 FR 33993
Published 6/23/93
Effective 7/10/96

10 CFR Part 50

RIN 3150-AE55

Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for monitoring the effectiveness of maintenance programs at commercial nuclear power plants. The current regulations require that nuclear power plant licensees evaluate performance and condition monitoring activities and associated goals and preventive maintenance activities at least annually. This amendment changes the time interval for conducting evaluations from a mandatory once every year to at least once every refueling cycle, but not to exceed 24 months.

EFFECTIVE DATE: July 10, 1996.

ADDRESSES: Copies of comments received on the proposed rule may be inspected and copied for a fee at the Public Document Room located at 2120 L Street, NW. (Lower Level), Washington, DC.

Single copies of the environmental assessment are available from Joseph J. Mate, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 292-3795.

FOR FURTHER INFORMATION CONTACT: Joseph J. Mate, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3795.

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SUPPLEMENTARY INFORMATION:

Background

On July 10, 1991 (56 FR 31324) the NRC published the final rule "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (§ 50.65). The final rule, which will become effective July 10, 1996, requires commercial nuclear power plant licensees to monitor the effectiveness of maintenance activities for safety-significant plant equipment in order to minimize the likelihood of failures and events caused by the lack of effective maintenance. Section 50.65 (a)(3) requires nuclear power plant licensees to evaluate the overall effectiveness of their maintenance activities on an annual basis. An industry consensus guidance document and a regulatory guide to provide an acceptable methodology for implementing the final rule are expected to be published by June 30, 1993.

Discussion

Since the Maintenance Rule was published in July 1991, two events have occurred that led the Commission to reconsider the annual evaluation requirements in § 50.65(a)(3).

First, in the Summer of 1991, the Nuclear Management Resources Council (NUMARC) Steering Group was formed to develop an industry guide for implementing the Maintenance Rule. While developing the guide, the Steering Group suggested to the NRC in a public meeting held on February 28, 1992, that instead of annual assessment requirements, the NRC should consider assessments based on a refueling cycle interval. The NUMARC Steering Group stated that:

(1) Significantly more data would be available during refueling cycles than is available on an annual basis;

(2) Key data from some surveillance tests can only be obtained during refueling outages and is not available on an annual basis; and

(3) Adjustments to maintenance activities that may be made after such an evaluation would be typically performed after a refueling outage.

The NUMARC Steering Group further added that the evaluation process is a time consuming activity and that with limited data available, the annual evaluation would not provide for meaningful results. With only limited

data, changes to maintenance programs will likely not be made because there would not be sufficient information available for spotting trends or doing trend analysis.

Second, the NRC conducted a regulatory review to eliminate or revise unnecessarily burdensome regulations and published a final rule on August 31, 1992 (57 FR 39353) that amended several regulations identified by its Committee to Review Generic Requirements (CRGR). One of those amended regulations was 10 CFR 50.71 (e) (Final Safety Analysis Report Updates) where the frequency of licensee reporting to the NRC was changed from annually to once per refueling cycle. The change was made because the use of a refueling cycle interval provided a more coordinated and cohesive update since a majority of design changes and major modifications were performed during refueling outages. In addition, it had no adverse impact on the public health and safety and reduced the regulatory burden on the licensees.

The Commission is now changing the required frequency of maintenance activity evaluations from annually to once per refueling outage. Evaluation of data collected over the period of a refueling cycle will provide a substantially better basis for detecting problems in degraded performance of structures, systems, and components (SSC's) and weakness in maintenance practices. Evaluations conducted on a refueling cycle basis would also consider and integrate data available only during refueling outages with the data available during operations; under the existing requirements this may not occur depending on whether the annual assessment coincides with the refueling outage. Furthermore, evaluations of data accumulated over the period of a refueling cycle, as opposed to the shorter annual period required by the rule, will provide a more meaningful basis for the recognition and interpretation of trends. The Commission understands that a normal frequency of refueling outage ranges from 15 to 18 months; however, the conditions may vary from plant to plant. In order to ensure that an indefinite period of time does not occur between maintenance evaluations, the Commission is establishing an upper limit of 24 months between the

maintenance evaluations. This would address those licensees that have extended their refueling cycle beyond 24 months for any reason including numerous short outages or extended shutdown periods. Although the Commission believes that it is generally the case that maintenance evaluations will be more effective if conducted in conjunction with refueling outages, licensees would still have the option of conducting them more frequently.

In light of the above discussion, the NRC is changing the requirement for evaluation of the overall effectiveness of maintenance activities to be performed once per refueling cycle provided the interval between evaluations does not exceed 24 months.

Summary and Analysis of Public Comments

On March 22, 1993 (58 FR 15303), the NRC published a notice of the proposed rulemaking for public comment. The comment period expired on May 6, 1993. The NRC received 17 comments on the proposed rule. All of the comments except for one favored the change identified in the proposed rule. The comments on the proposed rule came primarily from public utilities with comments also received from a public utilities representative and a private citizen. The NRC has identified and grouped all comments into six broad issues. For each broad issue, the NRC has included a summary of the comments received and their resolution as follows:

1. Comment. One commenter stated that the proposed change in the rule would unfairly require nuclear plants on an annual refueling cycle to perform twice as many evaluations as plants on a 24-month cycle. The commenter believes that the NRC should consider a fixed maximum period of 2 years and give the utilities the latitude to manage the timing of the evaluation within that framework.

Response. The intent of the proposed modification of the maintenance rule is to allow sufficient flexibility in the scheduling of Maintenance Programs evaluations so that the additional information available from the refueling activities could be factored into the evaluation. The refueling cycle has also been adopted as the basis for FSAR updates. It is recognized that those licensees who refuel more frequently will have to conduct these activities more frequently than others. The Commission believes that this is neither an undue burden nor one that is outside the control of the licensee to impact by reducing the frequency of refueling.

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2. *Comment.* Some commenters stated that, as a result of the verification and validation program to test the proposed industry guidelines, it was determined that several systems are neither risk-significant nor able to be monitored for performance by currently known plant level performance criteria. Some commenters believe that these systems have no public health or safety significance and that they should be excluded from the scope of the rule and the rule modified accordingly.

Response. The suggestion to change the scope of the rule to exclude those systems that have no public health or safety significance or that have no current plant level performance criteria is clearly beyond the scope of the rule, and cannot be considered at this time. However, if, as a result of any further verification and validation programs, changes to the rule or regulatory guidance are warranted, the NRC will consider such changes at that time.

3. *Comment.* One commenter stated, "one of the clear lessons learned from the recently completed verification and validation program is that the major expense of the rule's implementation will be the detailed documentation (for NRC audit purposes) of performance monitoring * * *".

Response. The documentation developed by a licensee in response to 10 CFR 50.65 is that level which the licensee determines necessary to support the program developed by the licensee to monitor performance of a structure, system or component. The purpose of this rule modification is not to address the level of documentation required for NRC audit purposes. It is merely to provide more flexibility in the timing of Maintenance Program evaluations.

4. *Comment.* One commenter stated that "The NRC is mesmerized by a suggestion by NUMARC (Nuclear Management and Resources Council), to extend the annual assessment of plant maintenance from an annual schedule to a refueling outage schedule." The commenter further stated that the extension does not provide an improvement in safety and may help hide maintenance that was improperly deferred.

Response. As stated earlier, the NRC decided to make the proposed change in the assessment requirement for the following reasons: (1) Evaluation of data collected over the period of a refueling cycle will provide a substantially better basis for detecting problems in degraded performance of SSC's and weakness in maintenance practices; (2) Evaluations conducted on a refueling cycle basis would also consider and integrate data

available only during refueling outages with the data available during operations; under the existing requirements this may not occur depending on whether the annual assessment coincides with the refueling outage; and (3) Evaluation of data accumulated over the period of a refueling cycle, as opposed to the shorter annual period required by the rule, will provide a more meaningful basis for the recognition and interpretation of trends. In addition, adjustments to maintenance activities that may be made after such a review and evaluation would be typically performed after a refueling outage. Periodic evaluation of maintenance activities is a time consuming process and with limited data available, the annual evaluations not conducted in conjunction with a refueling would not provide for as meaningful a result. These conclusions have been reached based on the NRC's independent assessment. Therefore, the commenter incorrectly implies that the NRC simply accepts NUMARC's suggestions without independent review and consideration.

Another reason for changing the annual assessment of plant maintenance concerned a change made by the NRC in August of 1992. As part of the regulatory review to eliminate or revise unnecessary burdensome regulations, the NRC revised the frequency of licensee reporting of the Final Safety Analysis Reports from annually to once per refueling cycle. This change was made because the NRC believes that the use of a refueling cycle interval provided a more coordinated and cohesive update since the majority of the design changes and modifications were made during refueling outages. This was not a rationale relied upon by NUMARC and further contradicts the commenter's view that the NRC accepts the suggestions of NUMARC without independent consideration.

In summary the Commission disagrees with the commenter's view that the extension does not improve safety. The change in requirements will improve the quality of assessments by ensuring that each assessment will include a review of all maintenance activities conducted during the refueling cycle including the refueling outage.

5. *Comment.* One commenter stated that effective maintenance is an ongoing duty and need and that allowing licensees to put off monitoring the effectiveness of maintenance from annually to 18 to 24 months sends the wrong message that the NRC does not care about safety.

Response. The NRC agrees that effective maintenance is an ongoing duty and need. The NRC does not agree, however, that the rule change allows licensees to put off monitoring the effectiveness of maintenance. Section 50.65 (a)(1) which is not being changed, requires licensees to monitor the performance or conditions of SSC's against licensee-established goals, in a manner sufficient to provide reasonable assurance that these SSC's are capable of fulfilling their intended functions. It also requires appropriate corrective action to be taken when the performance of the SSC does not meet established goals. The only thing that is being changed is the frequency of the periodic evaluation of the maintenance program. The NRC does care about safety and it does not agree with the commenter that changing the evaluation cycle sends the wrong message to the industry. The NRC believes that this additional flexibility will not result in any increase in risk to public health and safety, and in fact, should result in a more effective maintenance and improved plant safety.

6. *Comment.* One of the commenters stated that the amendments' maximum time period of 24 months would be restrictive for those plants planning to increase their refueling cycle to 24 months. The commenter explained that the Standard Technical Specification, Revision 0, retains the option for performance of surveillance requirements within 1.25 times the interval specified and thus, could extend the refueling outage interval of plants with a 24-month refueling cycle by upwards of 6 months. Accordingly, the refueling cycle for these plants would not meet the maximum time period of 24 months allowed by the amendment. Another commenter stated that this rule could be further improved by the elimination of the requirement for a specific time interval.

Response. The NRC believes that it is necessary to assure that maintenance effectiveness is periodically assessed and that this period is not unacceptably long nor indefinite. Thus, a balance was necessary between obtaining the improved reviews associated with assessments conducted during refueling outages and the extended or indefinite periods associated with plants with extended plant cycles or experiencing extended plant shutdown or outages. In weighing this balance, the Commission established an upper limit of 24 months between maintenance evaluations in order to obtain improved evaluations for the majority of the plants having a frequency of refueling cycle from 15 to 18 months, and yet not allow

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maintenance effectiveness to continue without being assessed for periods in excess of 2 years. The NRC does not agree that the rule could be improved further by elimination of the requirement of a specific time interval.

Finding of No Significant Environmental Impact: Availability

The Commission has determined that, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule, is not a major Federal action that significantly affects the quality of the human environment and therefore an environmental impact statement is not required.

The final amendment does not require any change to nuclear power plant design or require any modifications to a plant. Nor does the rule change the scope of the maintenance rule or affect the nature of the activities to be performed, e.g., monitoring, corrective action, and assessments of compliance. The final rule change only extends the time period for performing evaluations of the effectiveness of licensees' maintenance program from at least once a year to at least once every refueling cycle, not to exceed 24 months. The extension should not result in any significant or discernible reduction in the effectiveness of a licensee's maintenance program; rather the change will increase the meaningfulness and quality of the maintenance evaluations. For these reasons, the Commission finds that the final amendment will not result in any significant increase in either the probability of occurrence of an accident or the consequences of an accident and therefore concludes that there will be no significant effect on the environment as a result of the amendment.

The environmental assessment is available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Single copies of the environmental assessment are available from Joseph J. Mate, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 492-3795.

Paperwork Reduction Act Statement

This final rule amends the information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Because the rule relaxes existing requirements related to the assessment of maintenance activities, the public

burden for this collection of information is expected to be reduced by 150 hours per licensee. This reduction includes the time required for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding the estimated burden reduction or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Nuclear Regulatory Commission has considered the costs and benefits of the final rule. With respect to benefits, the amendment will allow those licensees who choose to exercise the option to perform evaluations of their maintenance program in conjunction with refueling outages but no less frequently than every 24 months. The Commission believes that this additional flexibility will not result in any increase in risk to the public health and safety, and may result in a more effective maintenance and improved plant safety.

Under the rule, the frequency of periodic assessments would change from annually to at least once per refueling cycle but not to exceed 24 months. Because most refueling outages normally occur in the 15- to 18-month range, the time between periodic assessments assuming a 16-month average would be increased by about 33 percent. Therefore, the licensee staff hours to accomplish a periodic assessment under the proposed rule would be reduced from approximately 460 staff hours to about 310 staff hours per plant. This would save the licensee approximately 150 staff hours per plant. There are no additional changes in costs to be incurred by the NRC. The foregoing constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, (5 U.S.C. 605(b)), the Nuclear Regulatory Commission certifies that, this rule will not have a significant economic impact on a substantial number of small entities. This rule affects only the operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of

"small entities" as set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in the regulations issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule and, therefore, that a backfit analysis is not required for this final rule because this amendment does involve any provisions which would impose backfits as determined in 10 CFR 50.109.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552, 553, the NRC is adopting the following amendment to 10 CFR part 50.

58 FR 39092
Published 7/21/93

10 CFR Part 50
RIN 3150-AD80

Training and Qualification of Nuclear Power Plant Personnel

Correction

In rule document 93-9651 beginning on page 21904 in the issue of Monday, April 26, 1993, make the following corrections:

§ 50.120 [Corrected]

On page 21912, in the first column, in § 50.120(b)(1), beginning in the second and sixth lines, "[October 25, 1993, publication]" should read "November 22, 1993" each time it appears.

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58 FR 45243
Published 8/27/93
Effective 9/27/93

10 CFR Parts 50 and 54

RIN 3150 - AE63

FSAR Update Submittals

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations on power reactor safety in order to consistently apply the requirement that nuclear power plant licensees submit final safety analysis report (FSAR) updates annually or six months after each refueling outage. These amendments eliminate confusion regarding two references to an existing reporting requirement. The final rule does not require additional reporting requirements.

EFFECTIVE DATE: September 27, 1993.

FOR FURTHER INFORMATION CONTACT: Claudia M. Craig, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-1281.

SUPPLEMENTARY INFORMATION:

Background

In February 1993, the Commission approved the establishment of a regulatory review group (RRG) to conduct a comprehensive and disciplined review of power reactor regulations and related NRC processes, programs, and practices for their implementation. The RRG found two areas in the regulations that may cause confusion regarding a recent amendment to another section of the regulations. On August 31, 1992, the Commission amended 10 CFR 50.71(e) to allow nuclear power reactor licensees to submit FSAR updates either annually or 6 months after each refueling outage. The RRG discovered that 10 CFR 50.54(a)(3) and 10 CFR 54.37(b) still referenced the previous requirement for annual FSAR submittals. This conflict may confuse licensees in determining how often quality assurance program changes and FSAR updates for license renewal should be submitted.

Description

The amendments delete the references to the annual submittal of updates in 10 CFR 50.54(a)(3) and 10 CFR 54.37(b). The amended sections reference the

regulation, 10 CFR 50.71(e), not the specific requirements of the regulation. Licensees with a QA program description that is common to multiple units or several sites may submit changes to the common quality assurance (QA) program description that do not reduce commitments annually or 6 months after each refueling outage at only one of the sites if the interval between submittals does not exceed 24 months and all applicable dockets are referenced. This would allow licensees with multiple plants to tie the submittal of changes to the common QA program to the refueling outage schedule of only one plant and would eliminate the need for a separate submittal for each plant. The amendment will eliminate the confusion caused by the conflicting requirements in different sections of the regulations.

Summary of Public Comments

On May 14, 1993 (58 FR 28523), the NRC published a proposed rule that would delete the references to the annual submittal of updates in 10 CFR 50.54(a)(3) and 10 CFR 54.37(b). The comment period ended on June 14, 1993, and the NRC received five letters of public comment on the proposed rules. Four commenters fully supported the proposed changes; one commenter submitted statements for § 50.54(a)(3) to further clarify the requirements and recommended that NRC revise 10 CFR 54.37(c) to duplicate the reporting frequency of § 50.59(b)(2); one commenter also recommended that NRC consider extending the reporting frequency associated with 10 CFR 50.59(b)(2) to be consistent with the FSAR update submittal. The Commission agrees with the proposed statements for 10 CFR 50.54(a)(3) and has incorporated the statements into the final rule. All other sections of the final rulemaking remain unchanged. Copies of those letters and the NRC staff response to the public comments are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street NW. (Lower Level), Washington, DC.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(3) (i) and (iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork

Reduction Act of 1980 (44 U.S.C. 3051 et seq.). Existing requirements were approved by the Office of Management and Budget approval numbers 3150-0011 and 3150-0155.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Claudia M. Craig, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 504-1281.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this regulation will not have a significant economic impact on a substantial number of small entities. This regulation affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" as given in the Regulatory Flexibility Act, or the Small Business Size Standards promulgated in the regulations issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule. The rule affects recordkeeping and reporting requirements which have been deemed not subject to the backfit rule and the changes are voluntary relaxations of requirements which are not being imposed upon licensees. Therefore, a backfit analysis is not required for this final rule because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 54

Administrative practice and procedure, Age-related degradation, Backfitting, Classified information,

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Criminal penalties, Environmental protection, Incorporation by reference, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR parts 50 and 54.

58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

58 FR 67657
Published 12/22/93
Effective 1/1/94

*Standards for Protection Against
Radiation; Removal of Expired Material*

See Part 20 Statements of Consideration

58 FR 68726
Published 12/29/93
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism*

See Part 30 Statements of Consideration

59 FR 1618
Published 1/12/94
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism;
Correction*

See Part 30 Statements of Consideration

59 FR 5519
Published 2/7/94
Effective 2/7/94

Minor Clarifying Amendments

See Part 21 Statements of Consideration

59 FR 10267
Published 3/4/94
Effective 4/4/94

10 CFR Part 50

RIN 3150-AE46

Notification of Spent Fuel Management and Funding Plans by Licensees of Prematurely Shut Down Power Reactors

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to clarify the timing of notification to the NRC of spent fuel management and funding plans by licensees of those nuclear power reactors that have been shut down before the expected end of their operating lives. The final rule requires that a licensee submit such notification either within 2 years after permanently ceasing operation of its licensed power reactor or no later than 5 years before the reactor operating license expires, whichever event occurs first. Licensees of nuclear power reactors that have already permanently ceased operation by the effective date of this rule are required to submit such notification within 2 years after the effective date of this rule.

EFFECTIVE DATE: April 4, 1994.

FOR FURTHER INFORMATION CONTACT:
Robert Wood, Office of Nuclear Reactor
Regulation, U.S. Nuclear Regulatory
Commission, Washington, DC 20555,
telephone (301) 504-1255.

SUPPLEMENTARY INFORMATION:

Background

On June 30, 1993, the NRC published in the *Federal Register* a notice of proposed rulemaking to clarify the timing of notification to the NRC of spent fuel management and funding plans by licensees of those nuclear power reactors that have been shut down prematurely (58 FR 34947).

1. Comments Received

The NRC received four comments on the proposed rule. Three of the four comments came from licensees or their representatives and supported the rule as proposed. These commenters agreed with the NRC assessment that the proposed rule is administrative in nature and would produce consistency with the decommissioning rule. However, each of the three recommended that the rule amendments should apply only prospectively; that is, the rule should not apply to licensees whose power reactors have already permanently ceased operating. The commenters requested that the NRC allow licensees of these plants to submit spent fuel management funding plans on a case-by-case schedule. One commenter recommended that the NRC add a statement to this effect to the final rule.

A fourth commenter supported the concept of requiring the submittal of spent fuel management and funding plans soon after permanent shutdown, but recommended that licensees be required to submit these plans within 60 days after permanent shutdown.

The three commenters representing licensees also supported the NRC intent to initiate rulemaking on including spent fuel costs as part of decommissioning costs only after careful consideration of the database that the NRC is developing in this area. In a related area, one of these commenters noted that the NRC currently has regulations in place in 10 CFR part 72 to ensure a licensee's financial qualifications for the safe construction, operation, and decommissioning of an independent spent fuel storage installation (ISFSI). The fourth commenter supported rulemaking on funding assurance for spent fuel storage costs that would be similar to, but separate from, decommissioning costs.

2. NRC Response to Comments

The NRC responds as follows to the issues raised by the commenters:

(1) *The rule should only apply prospectively.*

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NRC response: The NRC disagrees that this rule should not apply to licensees of plants that have already permanently ceased operating. This rule should be consistent with the provisions of 10 CFR 50.82(a), which requires all power plant licensees to submit decommissioning plans no later than 2 years after permanently ceasing operations regardless of how long the plant operated. The NRC recently amended 10 CFR 50.82(a) to allow the collection period of any shortfall of decommissioning funds to be determined on a case-by-case basis for plants that had been shut down prematurely (57 FR 30383, July 9, 1992). However, even licensees of these plants must submit their decommissioning plans within the 2-year time frame, notwithstanding the collection period ultimately adopted.

To maintain consistency, the NRC believes that the 2-year limit should be applied to plants already shut down. However, to assure that the NRC does not impose unnecessary burdens on these licensees, the final rule has been modified to allow these licensees 2 years from the effective date of the rule to submit their spent fuel management and funding plans.¹

(2) Submittal of spent fuel management and funding plans should be required within 60 days of permanent shutdown of the facility, rather than within 2 years.

NRC Response: The NRC disagrees with this comment. Sixty days is too short a period in which to develop a meaningful spent fuel management and funding plan. Because licensees will normally develop these plans in conjunction with their decommissioning plans, the NRC should maintain consistency by requiring the same 2-year limit for both spent fuel management and funding plans and the overall decommissioning plan, which includes decommissioning funding.

(3) Costs associated with the construction, operation, and decommissioning of ISFSIs are already assured by provisions in 10 CFR Part 72.

NRC Response: The NRC agrees that part 72 contains provisions to ensure

that licensees have adequate funds to construct, operate, and decommission ISFSIs. Spent fuel management and funding plans submitted in compliance with the amended § 50.54(bb) need not cover spent fuel while it is being stored in an ISFSI in compliance with part 72. The NRC will consider whether these provisions are adequate when it evaluates whether it is necessary to include spent fuel management and funding as part of decommissioning costs.

Finding of No Significant Environmental Impact: Availability

This final rule clarifies the timing of the submittal of plans for managing and providing funding for managing all irradiated fuel for those licensees whose power reactors are shut down prematurely. This action is required to coordinate the submittal of spent fuel management and funding plans with the submittal of decommissioning plans for prematurely shut down reactors. Because management and funding of spent fuel can have a significant impact on the method and timing of decommissioning, licensees should submit their plans for spent fuel management and funding to be consistent with the timing provisions for decommissioning plans in § 50.82(a) (i.e., no later than 2 years after permanent shutdown).

Neither this action nor the alternative of maintaining the existing rule would significantly affect the environment. Changes in the timing of the submittal of spent fuel management and funding for prematurely shut down power reactors would not alter the effect on the environment of the licensed activities considered in either the final spent fuel disposition rule (49 FR 34689; August 31, 1984) or the final decommissioning rule (53 FR 24018; June 27, 1988) as analyzed in the Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586, August 1988). The alternative to this action would not significantly affect the environment. Therefore, the Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule will not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. No other agencies or persons were contacted for this action, and no other documents related to the environmental impact of this action exist. The foregoing constitutes the environmental

assessment and finding of no significant impact for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number [3150-0011].

Regulatory Analysis

On August 31, 1984, the NRC published a final rule, "Requirements for Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of Reactor Operating Licenses." (49 FR 34689). As part of this rule, the NRC required power reactor licensees to submit for NRC review and approval, no later than 5 years before expiration of the reactor operating license, their plans for managing spent fuel at their site until title to the spent fuel is transferred to the Department of Energy (DOE). These plans are to include plans for funding of spent fuel management before transfer to DOE.

On June 27, 1988, the Commission promulgated its final decommissioning rule (53 FR 24019). Section 50.82 of this rule provides that licensees of all power reactors that permanently cease operation after July 27, 1988, including those that shut down prematurely, must apply to the NRC to decommission their facilities within 2 years following permanent cessation of operations. Section 50.82(b)(1)(iii) further provides that the proposed decommissioning plan submitted by the licensee should consider such factors as the "unavailability of waste disposal capacity and other site-specific factors affecting the licensee's capability to carry out decommissioning safely * * *." The Commission requires licensees to submit decommissioning plans in a timely manner after they permanently cease operations at their facilities. The NRC's regulations recognize that a licensee's ability to plan properly and safely for decommissioning depends on a licensee's ability to manage and dispose of its spent fuel. Thus, the timing of requirements for submittal of plans for spent fuel management and storage should be consistent with the timing for submittal of decommissioning plans, including those for power reactors that have been shut down prematurely. Therefore, the NRC is amending 10 CFR 50.54(bb) to require each power reactor licensee to notify the NRC of its program to manage and provide funding for

¹ In practice, licensees of most of the nuclear power plants that have already permanently shut down have developed plans for the management and funding of the disposition of spent fuel at their sites. For example, Fort St. Vrain has either shipped spent fuel offsite to DOE or moved it to an ISFSI onsite. Shoreham is shipping its fuel to Limerick. Yankee-Rowe and Rancho Seco have developed plans for onsite storage facilities. Humboldt Bay and LaCrosse are maintaining fuel in their spent fuel pools. Dresden 1, San Onofre 1, and Indian Point 1 are maintaining fuel in their spent fuel pools or in pools of other units still operating at the site. Peach Bottom 1 has no fuel onsite.

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management of the irradiated fuel at its reactor either within 2 years after the licensee permanently ceases operation of its reactor or no later than 5 years before its reactor operating license expires, whichever occurs first. Licensees of nuclear power reactors that have already permanently ceased operations by the effective date of this rule are required to submit such notification within 2 years after the effective date of this rule.

Although the timing of preparation and submittal of plans for management and funding of spent fuel would be formally advanced for licensees that shut down their power reactors prematurely, these licensees typically would have already evaluated spent fuel management and funding issues before submitting decommissioning plans required under 10 CFR 50.82. This rule merely makes 10 CFR 50.54(bb) submittal schedular requirements consistent with 10 CFR 50.82. Thus, there should be no substantive impact on power reactor licensees.

This final rule would not create substantial costs for other licensees. This final rule also will not significantly affect State and local governments and geographical regions, or the environment, or create substantial costs to the NRC or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant impact upon a substantial number of small entities. The rule will potentially affect approximately 115 nuclear power reactor operating licenses. Nuclear power plant licensees do not fall within the definition of small businesses as defined in section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administrator (13 CFR part 121), or the Commission's Size Standards (56 FR 56671, November 6, 1991).

Backfit Analysis

The NRC has determined that this final rule does not impose a backfit as defined in 10 CFR 50.109(a)(1). Therefore, a backfit analysis is not required for this final rule.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation

protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons given in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 50.

59 FR 14085
Published 3/25/94
Effective 5/31/94

*NRC Operations Center Commercial
Telephone Number Change*

See Part 20 Statements of Consideration

59 FR 14087
Published 3/25/94
Effective 6/23/94

10 CFR Part 50

RIN: 3150-AD40

Emergency Planning and Preparedness Exercise Requirements for Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its emergency planning regulations in order to update the Commission's emergency planning exercise requirements for nuclear power plants and clarify ambiguities that have surfaced in the implementation of the regulations. These amendments also make the NRC regulations consistent with FEMA regulations.

EFFECTIVE DATE: June 23, 1994.

FOR FURTHER INFORMATION CONTACT: Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301-492-3918).

SUPPLEMENTARY INFORMATION:

Background

On August 19, 1980 (45 FR 55402), the NRC published a final rule that revised its emergency planning regulations. The final rule became effective on November 3, 1980. On July 6, 1984 (49 FR 27733), the NRC amended its emergency planning regulations to relax the frequency of participation by State and local governmental authorities in emergency preparedness exercises at nuclear power reactor sites. The amendments were based on the NRC's experience gained in observing and evaluating emergency preparedness exercises since 1980.

Further experience has shown that the language setting forth the requirements in 10 CFR part 50, Appendix E, Section IV.F.3 concerning full or partial participation by State or local governments in the biennial (offsite) exercise is unnecessarily complicated. The NRC published a notice of proposed rulemaking in the *Federal Register* on June 28, 1993 (58 FR 34539). Public comments were requested by September 13, 1993. The proposed rule did not seek to change the requirements set forth in Appendix E, Section IV.F.3 (a), (b), and (d) but to clarify and simplify the text of the regulation. Offsite authority responsibilities remain unchanged.

Under the proposed rule the offsite plans for each site were to be exercised biennially with full participation by each offsite authority having a role under the plan. Further, where the offsite authority has a role under the plan for more than one site, it would be required to participate in one exercise fully every two years and partially participate in other offsite plan exercises in this period. The only amended requirements were those set forth in Appendix E, Section IV.F.3(e) where the interval for an ingestion exposure pathway exercise was changed from 5 to 6 years, and Appendix E, Section IV.F.3(c) where the requirement that all States within the plume exposure pathway emergency planning zone (EPZ) for a given site fully participate in an offsite exercise for that site at least once every 7 years was deleted.

Public Comments

A total of 12 comment letters were received, of which 5 were from utilities, 6 were from State emergency management agencies and one from NUMARC. All commenters generally agreed with the proposed rulemaking except for one State agency.

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Comment: The one commentor that opposed the rule change noted that,

We do not believe, however, the NRC has substantiated its claim that the seven-year return requirement is unnecessary. Similar arguments have surfaced in previous emergency planning issues, and our response is the same: The high level of industry sensitivity to emergency preparedness is a direct result of comprehensive requirements for emergency preparedness programs and exercises. Elimination of those requirements runs the risk of returning the industry to pre-TMI levels of preparedness.

Response: The Commission does not agree that deleting the 7 year return frequency " * * * runs the risk of returning the industry to pre-TMI levels of preparedness." The Commission is confident that this will not occur because the Commission has found that multi-sites states, when not fully participating in an exercise at a specific site will usually partially participate at a significant level of activity every 2 years at that specific site in order to support the participation of the appropriate local governments. The Commission has found that this level of exercise participation provides adequate emergency response training for State and local governments. The Commission believes that this rulemaking does not have an adverse impact on public health and safety because State emergency response personnel continuously respond to actual emergencies and experience has shown that states through a combination of full and partial participation exercises maintain an adequate level of response capability. A formal requirement for a State to return to a specific site every 7 years to participate in an exercise has proven to be unnecessary. Nonetheless, nothing prevents a State from returning to a specific site to participate in an exercise whenever it deems warranted.

Comment: Several comments suggested additional clarification to the emergency planning regulations.

Response: Although the Commission always appreciates suggestions on clarifying its regulations, the Commission at this time believes that all of the suggested changes would be inappropriate to include in this rulemaking proceeding because the suggested revisions are beyond the scope of this rulemaking.

Comment: Several commenters noted that the proposed wording for the ingestions pathway exercise was not consistent with the FEMA requirement and could be interpreted differently than intended. They suggested the following requirement, "A State should fully participate in the ingestion

pathway portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site."

Response: The Commission agrees with the suggested wording and has incorporated this comment in the final rule.

Discussion

The Commission finds that the current regulation has resulted in a relatively complicated description of the requirements for exercise participation by State and local governments who have offsite planning responsibility for more than one nuclear power plant. This final rule simplifies and clarifies this requirement. In addition, Appendix E is revised to reflect that the interval for an ingestion exposure pathway exercise be changed from at least once every 5 years to at least once every 6 years (FEMA's ingestion pathway exercise requirement is at least once every 6 years). The change in the interval would match the biennial frequency required for exercises of offsite plans. Further, Appendix E is also revised to eliminate the 7 year return frequency requirement because it has proven to be unnecessary to achieve the underlying purpose of the rule as well as being burdensome to states which are within the plume exposure pathway for multiple sites (FEMA does not have a return frequency requirement). Both changes assure compatibility with FEMA requirements and thus avoid confusion among licensees and State governments. Notwithstanding elimination of the 7 year return frequency requirement, the Commission believes that offsite authorities should rotate their full participation in exercises among sites if they are within the plume exposure pathway for more than one site.

The Commission codified the 7 year return frequency in the July 6, 1984 (49 FR 27733), amendment to the emergency planning regulations. This amendment provides that at least once every 7 years, all States within the plume exposure pathway EPZ of a given site must fully participate in an offsite exercise for that site. In doing so, the Commission noted that "the final rule is not totally consistent with FEMA's final regulation (44 CFR part 350). This inconsistency lies in the area of return frequency of multiple-site states as previously discussed. The FEMA position on return frequency is a significant departure from the NRC's proposed regulation of July 21, 1983 (48 FR 33307). The Commission believes that more study is needed before

deletion of the return frequency requirement can be justified."

The Commission now believes that sufficient experience has been gained in the observation and evaluation of emergency preparedness exercises at nuclear power reactor sites to conclude that the 7 year return frequency should be deleted.

The Commission has found that multi-site States, when not fully participating in an exercise at a specific site will usually partially participate at a significant level of activity every 2 years at that specific site in order to support the participation of the appropriate local governments. The Commission has found that this level of exercise participation provides adequate emergency response training for State and local governments. Additionally, a provision still exists in the regulation which permits State or local government participation in any licensee's drills or exercises. A State or local government may consider its response capability to be less than optimal because of an unusually large personnel turnover or because there have been limited responses to real emergencies in the community. The regulation still requires the licensees to provide for State or local government participation if they indicate such a desire. This final revision does not have any adverse impact on public health and safety because State emergency response personnel continuously respond to actual emergencies and experience has shown that states through a combination of full and partial participation exercises maintain an adequate level of response capability. A formal requirement for a State to return to a specific site every 7 years to participate in an exercise has proven to be unnecessary. This rulemaking deletes that unnecessary, unwarranted and burdensome requirement. Nonetheless, nothing prevents a State from returning to a specific site to participate in an exercise whenever it deems warranted.

Lastly, this revision deletes past due dates (see section F(2) (a)) because they are now meaningless.

FEMA concurs with the amendments in this rulemaking.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment; and therefore, an environmental impact statement is not

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required. This regulation updates and clarifies the emergency planning regulations relating to exercises. It does not involve any modification to any plant or revise the need for or the standards for emergency plans, and there is no adverse effect on the quality of the environment. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC 20036.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20036. Single copies of the analysis may be obtained from Michael Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 492-3918.

Regulatory Flexibility Act Certification

The regulation does not have a significant impact on a substantial number of small entities. The final rule updates and clarifies ambiguities in the emergency planning regulations relating to exercises. Nuclear power plant licensees do not fall within the definition of small business in Section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administration in 13 CFR part 121, or the Commission's Size Standards published at 56 FR 56671 (November 6, 1991). Therefore, in accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this final rule, will not have a significant economic impact on a substantial number of small entities and that, therefore, a regulatory flexibility analysis need not be prepared.

Backfit Analysis

This regulation does not impose any new requirements on production or utilization facilities. The regulation

deletes the requirement that all states within the plume exposure pathway EPZ for a given site fully participate in an offsite exercise for that specific site at least every 7 years. It also relaxes the requirement to perform an ingestion exposure pathway exercise from every 5 years to every 6 years. These changes would permit, but do not require, licensees to change their emergency plans and procedures. Therefore, these changes are not considered backfits as defined in 10 CFR 50.109 (a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection; Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 50.

59 FR 50688
Published 10/5/94
Effective 10/5/94

NRC Library; Address Change

See Part 35 Statements of Consideration

60 FR 13615
Published 3/14/95
Effective 4/13/95

10 CFR Parts 50, 55, and 73

RIN 3150-AF18

Reduction of Reporting Requirements Imposed on NRC Licensees

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reduce reporting requirements currently imposed on water-cooled nuclear power reactor, research and test reactor, and nuclear material licensees. This rule reduces the regulatory burden on NRC licensees; and partially implements a recent NRC initiative to revise or eliminate duplicative or unnecessary reporting requirements. The amendments will: Eliminate the current requirement for licensees to submit summary reports of containment leakage rate tests to the NRC (10 CFR Part 50—Appendix J), but preserve the requirements in §§ 50.72 and 50.73 under which licensees currently report any instances of leakage exceeding authorized limits in the technical specifications of the license; revise 10 CFR 55.25 to refer licensees to a similar reporting requirement in 10 CFR 50.74(c) and require notification of operator incapacity only in case of permanent disability or illness; and eliminate the requirement for quarterly submittal of safeguards event logs presently contained in 10 CFR 73.71(c)(2) and Appendix G to Part 73.

EFFECTIVE DATE: April 13, 1995.

FOR FURTHER INFORMATION CONTACT: Naïem S. Tanius, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 415-6103.

SUPPLEMENTARY INFORMATION:

Background

On January 7, 1994, the Executive Director for Operations (EDO) sent to the Commission SECY-94-003, "Plan for Implementing Regulatory Review Group Recommendations." The Commission approved these recommendations for reducing regulatory burden on its licensees. This

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final rule is one of several rulemakings and other regulatory actions currently being developed by the NRC staff to implement the Regulatory Review Group recommendations to eliminate duplicative or unnecessary reporting requirements. The NRC believes that this action will reduce the regulatory burden on NRC licensees without causing adverse effects on the protection of public health and safety.

On November 2, 1994 (59 FR 54843), the NRC published the notice of proposed rulemaking that reduces reporting requirements on licensees under Parts 50, 55, and 73. Specifically, the proposed amendments were intended to: (1) Eliminate the current requirement for licensees to submit summary reports of containment leakage rate tests to the NRC (10 CFR part 50—appendix J), but preserve the requirements in §§ 50.72 and 50.73 under which licensees currently report any instances of leakage exceeding authorized limits in the technical specifications of the license; (2) revise 10 CFR 55.25 to refer licensees to a similar reporting requirement in 10 CFR 50.74(c) and require notification of operator incapacity only in case of permanent disability or illness; and (3) eliminate the requirement for quarterly submittal of safeguards event logs presently contained in 10 CFR 73.71(c)(2) and Appendix G to Part 73. The public comment period expired December 19, 1994.

Analysis of Public Comments on the Proposed Rule

The NRC received seven comments: one from Nuclear Energy Institute (NEI), an organization that represents the nuclear power industry, five from the nuclear power industry, and one from Ohio Citizens for Responsible Energy, Inc. (OCRE). The comments from NEI and the nuclear power industry are supportive of the proposed rule to reduce the reporting requirements. OCRE opposes the proposed rule. However, all commenters believe that elimination of these reports will not adversely impact public health and safety. The following section addresses the public comments received and provides NRC's response to them.

Of the six comments received which favor the proposed rule, several of those endorsing the rule pointed out that the proposed changes eliminate unnecessary or redundant requirements and conserve both NRC and licensee resources. Two of the commenters felt that the NRC should assess additional reporting requirements to determine whether they can be eliminated or reduced in frequency. As discussed in

the background section of this rulemaking, the NRC has underway several regulatory activities to implement the Regulatory Review Group's recommendations to eliminate duplicative or unnecessary reporting requirements. This rulemaking is limited to the requirements set out in the proposed rulemaking.

Licensees do not Need to Assemble the Summary Report

One commenter from the nuclear power industry states that the requirement to generate but not submit a summary report for the containment leakage tests provides no additional benefit and is an unnecessary burden since the summary report contains data readily available from other sources. The commenter suggests that the requirement to generate the summary report be eliminated.

The NRC disagrees. The NRC believes that the results of containment leakage tests, the licensee analysis verifying the acceptability of the results, as well as any necessary interpretations of the results, is necessary information which might not be documented absent this documentation requirement. Furthermore, the assembly of a summary report will provide access by NRC inspectors and auditors to this information in a more timely fashion.

Public Participation in the NRC Regulatory Process Will Diminish

OCRE opposes the proposed rule because it believes that adoption of the rule will diminish the public's access to information. OCRE states that the public's health and safety is not the only factor to consider when NRC proposes to eliminate some licensee reports. Access to these reports, OCRE states, is vital for effective public participation in the regulatory process.

To that end, OCRE has filed a petition for rulemaking with the NRC (59 FR 30308, June 13, 1994). The purpose of the petition is to establish public right-to-know provisions which would ensure public access to licensee-held information.

In each case where the NRC considers eliminating a reporting requirement, the NRC first considers the public health and safety impact of the proposed elimination. If there is no direct impact on public health and safety, the NRC also considers the reduced administrative burden on the licensee and the extent to which the proposed elimination will deprive the public of important health and safety information. OCRE's comments have raised the generic issue of the incremental and cumulative effect of this and similar

rulemakings in depriving the public of access to licensee information that was previously available from the NRC. In that regard, OCRE has directly presented this issue to the Commission through its petition for rulemaking referenced above and the NRC finds that this generic issue is better addressed in the context of that petition, rather than in individual rulemakings such as this one. The NRC also finds that the effect of this rulemaking will be to reduce the administrative burden on licensees and that the loss of the information in this particular case will not adversely affect the public interest in access to information regarding adequate protection of the public health and safety.

Having considered all comments received and other input, the NRC has determined that the following final rule should be promulgated.

Written Reports

This final rule would not require additional written reports. On the contrary, under this final rule, reporting will be reduced for all licensees under 10 CFR Parts 50, 55, and 73.

Criminal Penalties

For purposes of Section 223 of the Atomic Energy Act of 1954, as amended, relating to willful violations of requirements notice is hereby given that these amendments are being adopted and promulgated pursuant to Sections 161b, 161i, or 161o of the Act.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in the categorical exclusion 10 CFR 51.22(c)(3)(iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval numbers 3150-0011, -0018, and -0002.

Because the rule will relax existing information collection requirements, the annual public burden for this collection of information is expected to be reduced by approximately 20 hours per licensee. This reduction includes the time required for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing

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the collection of information. Send comments regarding the estimated burden reduction or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011, -0018, -0002), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The Commission requested public comment on the draft regulatory analysis, but no comments were received. Therefore, no changes to the draft regulatory analysis have been made. The draft regulatory analysis is adopted as the final regulatory analysis without change. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. This final rule affects the nuclear power reactors, research and test reactors, and some material licensees. The companies and organizations that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act of the size standards established by the NRC (56 FR 56671; November 6, 1991).

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because these amendments do not involve any provisions which would impose backfits on licensees as defined in § 50.109(a)(1). In addition, information collection and reporting requirements are not subject to the backfit rule.

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 55

Criminal penalties, Manpower training programs, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Export, Import, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

60 FR 24549

Published 5/9/95
Effective 5/9/95

Changes to NRC Addresses and Telephone Numbers

See Part 2 Statements of Consideration

60 FR 36953

Published 7/19/95
Effective 8/18/95

10 CFR Part 50

RIN 3150-AF06

Technical Specifications

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to technical specifications for nuclear power reactors. The rule codifies criteria for determining the content of technical specifications. Each licensee covered by these regulations may voluntarily use the criteria as a basis to propose the relocation of existing technical specifications that do not meet any of the criteria from the facility license to licensee-controlled documents. The voluntary conversion of current technical specifications in this manner is expected to produce an improvement in the safety of nuclear power plants through a reduction in unnecessary plant transients and more efficient use of NRC and industry resources.

EFFECTIVE DATE: August 18, 1995.

FOR FURTHER INFORMATION CONTACT:

Christopher I. Grimes, Chief, Technical Specifications Branch, Division of Project Support, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone: (301) 415-1161.

SUPPLEMENTARY INFORMATION:

Background

Section 182a. of the Atomic Energy Act of 1954 (Act), as amended (42 U.S.C. 2232), mandates the inclusion of technical specifications in licenses for the operation of production and utilization facilities. The Act requires that technical specifications include information concerning the amount, kind, and source of special nuclear material; the place of use; and the specific characteristics of the facility. That section also states that technical specifications shall contain information the Commission requires through regulation to enable it to find that the utilization of special nuclear material will be in accord with the common defense and security and will provide adequate protection of public health and safety. Finally, that section requires technical specifications to be made a part of any license issued.

The Commission promulgated § 50.36, "Technical Specifications," which

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implements section 182a. of the Atomic Energy Act on December 17, 1968 (33 FR 18610). This rule delineates requirements for determining the contents of technical specifications. Technical specifications, at a minimum, must set forth the specific characteristics of the facility and the conditions for its operation that are required to provide adequate protection of the health and safety of the public. Specifically, § 50.36 requires the following:

Each license authorizing operation of a production or utilization facility of a type described in § 50.21 or § 50.22 will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to § 50.34. The Commission may include such additional technical specifications as the Commission finds appropriate.

Technical specifications cannot be changed by licensees without prior NRC approval. However, since 1969, there has been a trend toward including in technical specifications not only those requirements derived from the analyses and evaluation in the safety analysis report but also essentially all other Commission requirements governing the operation of nuclear power reactors. This extensive use of technical specifications was due in part to a lack of well-defined criteria (in either the body of the rule or in some other regulatory document) for what should be included in technical specifications. Since 1969, this use has contributed to the volume of technical specifications and to the several-fold increase in the number of license amendment applications to effect changes to the technical specifications. It has diverted both NRC staff and licensee attention from the more important requirements in these documents to the extent that it has resulted in an adverse but unquantifiable impact on safety.

On March 30, 1982 (47 FR 13369), the NRC published in the *Federal Register* a proposed amendment to Part 50. The proposed rule would have revised § 50.36, "Technical Specifications," to establish a new system of specifications divided into two general categories. Only those specifications contained in the first general category as technical specifications would have become part of the operating license and would have required prior NRC approval for any changes. Those specifications contained in the second general category would have become supplemental specifications and would not have required prior NRC approval for most changes. The NRC review of the first

general category of specifications would have been the same as that currently performed for technical specification changes, which are amendments to the operating license. For the second category, "supplemental specifications," the licensee would have been allowed to make changes within specified conditions without prior NRC approval. The NRC would have reviewed these changes when they were made and would have done so in a manner similar to that currently used for reviewing design changes, tests, and experiments performed under the provisions of § 50.59. Because of difficulties with defining the criteria for dividing the technical specifications into the two categories of the proposed rule and because of other higher priority licensing work, the proposed amendment was deferred.

In the early 1980s, the nuclear industry and the NRC staff began studying whether the existing system of establishing technical specification requirements for nuclear power plants needed improvement. During this period, an NRC task group known as the Technical Specifications Improvement Project (TSIP) and a Subcommittee of the Atomic Industrial Forum's (AIF's) Committee on Reactor Licensing and Safety performed two studies of this issue.¹ The overall conclusion of these studies was that many improvements in the scope and content of technical specifications were needed and that a joint NRC and industry program should be initiated to implement these improvements. Both groups made specific recommendations; these are summarized as follows:

(1) The NRC should adopt the criteria for defining the scope of technical specifications proposed in the AIF and TSIP reports. Those criteria should then be used by the NRC and each of the nuclear steam supply system vendor owners groups to completely rewrite and streamline the existing standard technical specifications (STS). This process would result in the transfer of many requirements from control by technical specification requirements to control by other mechanisms (e.g., the final safety analysis report (FSAR), operating procedures, quality assurance (QA) plan) that would not require a license amendment or prior NRC approval when changes were needed.

¹ SECY-86-10, "Recommendations for Improving Technical Specifications," January 13, 1986, contains both "Recommendations for Improving Technical Specifications," NRC Technical Specifications Improvement Project, September 30, 1985, and "Technical Specifications Improvements," AIF Subcommittee on Technical Specifications Improvements, October 1, 1985.

The new STS should place greater emphasis on human factors principles in order to make the text of the STS clearer and easier to understand. The new STS should also improve the bases section of technical specifications, which gives the purpose for each requirement in the specification.

(2) A parallel program of short-term improvements in both the scope and substance of the existing technical specifications should be initiated in addition to developing new STS as stated in recommendation 1.

On February 6, 1987 (52 FR 3788), the NRC published in the *Federal Register* for public comment an "Interim Policy Statement on Technical Specification Improvements for Nuclear Power Reactors" (interim policy statement) containing proposed criteria in response to recommendation 1. These criteria were generally derived from the criteria proposed in the AIF and TSIP reports and were modified slightly on the basis of discussions between the NRC staff and the industry. The public comment period for the interim policy statement expired on March 23, 1987.

The criteria were developed with the intention that they would apply to limiting conditions for operation (LCOs). The NRC staff believed that the safety limits needed to remain unchanged in the technical specifications because of their more direct link to protection of the physical barriers that guard against the uncontrolled release of radioactivity. At the time the criteria were developed, the industry did not wish to address administrative controls and design features in the effort to improve the STS. Later, however, both the industry and the NRC staff realized that it would be beneficial to include upgraded administrative controls and design features in the improved STS, and these were handled separately from the application of the criteria to the LCOs.

The NRC has developed a program for short-term improvements as described in recommendation 2 (above). These are known as "line-item" improvements and are generic improvements developed and promulgated by the NRC staff for voluntary adoption by licensees.

Subsequently, improved vendor-specific STS were developed and issued by the NRC in September 1992. The improved STS were published as the following NRC reports:

- NUREG-1430, "Standard Technical Specifications, Babcock and Wilcox Plants"
- NUREG-1431, "Standard Technical Specifications, Westinghouse Plants"

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- NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants"

- NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4"

- NUREG-1434, "Standard Technical Specifications, General Electric Plants, BWR/6"

Copies of these NUREGs, as revised, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, by calling (202) 275-2060 or by writing to the Superintendent of Documents, U.S. Government Printing Office, PO Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5825 Port Royal Road, Springfield, VA 22161.

These improved STS were the result of extensive technical meetings and discussions among the NRC staff, industry owners groups, vendors, and the Nuclear Management and Resources Council (NUMARC).

On July 22, 1993 (58 FR 39132), the Commission published a "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (final policy statement), which incorporated experience and lessons learned since publication of the interim policy statement. The Commission has decided not to withdraw the final policy statement because it contains detailed discussions of the four criteria and guidance on how the NRC staff and licensees should apply the criteria.

The interim policy statement identified three criteria to be used to define which of the current technical specification requirements should be retained or included in technical specifications and which LCOs could be relocated to licensee-controlled documents, as follows:

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The interim policy statement also stated that, in addition to structures, systems, and components captured by the three criteria, it was the Commission's policy that licensees retain in the technical specifications LCOs for a specified list of systems that operating experience and probabilistic risk assessment (PRA) had generally shown to be important to public health and safety. In the final policy statement, the Commission retained this thought as a fourth criterion as follows:

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

As stated in the final policy statement, if a requirement meets any one of the four criteria, it should be retained or included in technical specifications.

The final policy statement also addressed comments received on the interim policy statement and described the Commission's intent with regard to use of the criteria and their codification through rulemaking.

This final rule codifies the four criteria contained in the final policy statement for defining the scope of LCOs in technical specifications. These criteria are intended to be consistent with the scope of technical specifications as stated in the Statement of Consideration for the final rule issuing § 50.36 (33 FR 18610, December 17, 1968). The Statement of Consideration discussed the scope of technical specifications as including the following:

In the revised system, emphasis is placed on two general classes of technical matters: (1) Those related to prevention of accidents, and (2) those related to mitigation of the consequences of accidents. By systematic analysis and evaluation of a particular facility, each applicant is required to identify at the construction permit stage those items that are directly related to maintaining the integrity of the physical barriers designed to contain radioactivity. Such items are expected to be the subjects of Technical Specifications in the operating license.

The first of these two general classes of technical matters to be included in technical specifications is captured by Criteria 1, 4, and, to some extent, Criterion 2, in that they address systems and process variables that alert the operator to a situation when accident initiation is more likely. The second general class of technical matters is explicitly addressed and captured by Criteria 2, 3, and 4. By applying the four criteria contained in this rule, a licensee should capture the conditions for operation of its facility that are required

to meet the principal operative standard in Section 182a. of the Atomic Energy Act, that is, that adequate protection is provided to the health and safety of the public.

The Commission recognizes that the four criteria carry a theme of focusing on the technical requirements for features of controlling importance to safety. Since many of the requirements are of significance to the health and safety of the public, this rule reflects the subjective statement of the purpose of technical specifications expressed by the Atomic Safety and Licensing Appeal Board in Portland General Electric Company (Trojan Nuclear Plant), ALAB-531, 9 NRC 263 (1979). There, the Appeal Board interpreted technical specifications as being reserved for those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety.

The Commission wishes to emphasize that this rule is intended to be consistent with the language of section 182a. of the Atomic Energy Act, the current § 50.36 rule, and previous interpretations of the regulations. This rule merely clarifies the scope and purpose of technical specifications by identifying criteria which can be used to establish, more clearly, the framework for LCOs in technical specifications.

The Commission believes that amending § 50.36 to include the four criteria contained in the final policy statement will codify a viable, potentially safety-enhancing and cost-saving method for technical specification improvement. The Commission continues to encourage licensees to use the improved STS as the basis for plant-specific technical specifications. As stated in the final policy statement, the Commission will place the highest priority on requests based on the criteria for individual license amendments that are used to evaluate all of the LCOs for an individual plant to determine which LCOs should be included in the technical specifications. Related surveillance requirements and actions would be retained for each LCO that remains in the technical specifications. Each LCO, action, and surveillance requirement should have supporting bases. Such requests would constitute complete conversions to the improved STS.

In addition, the Commission will also entertain requests to adopt portions of the improved STS, even if the licensee does not adopt all STS improvements. These portions will include all related requirements and will be developed as

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line-item improvements by the NRC staff when they are clearly generic in nature, when there is evidence that a significant number of licensees could benefit from the improvement, and when the industry expresses interest in the improvement. The Commission encourages all licensees who submit technical specification related submittals based on these criteria to emphasize human factors principles to the extent practical consistent with the format and content of their current technical specifications.

LCOs that do not meet any of the criteria, and their associated actions and surveillance requirements, may be proposed for relocation from the technical specifications to licensee-controlled documents, such as the FSAR. The criteria may be applied to either standard or custom technical specifications. The Commission will also consider the criteria in evaluating future generic requirements for inclusion in technical specifications.

The Commission expects that licensees, in preparing their technical specification submittals, will utilize any plant-specific PRA or risk survey and any available literature on risk insights and PRAs. This material should be employed to strengthen the technical bases for those provisions that remain in technical specifications, when applicable, and to indicate whether the provisions to be relocated contain constraints of importance in limiting the likelihood or severity of the accident sequences that are commonly found to dominate risk. Similarly, the NRC staff has and will continue to employ risk insights in evaluating technical specifications submittals.

In addition to the use of PRA in Criterion 4 to determine the scope of technical specifications, PRA has been used as a basis for a number of improvements to the content of technical specifications over the last several years. The NRC staff has approved several relaxations in technical specification allowed outage times and surveillance test intervals which were based on PRA. In addition, the NRC staff used PRA to develop screening criteria to evaluate all of the changes in allowed outage times and surveillance test intervals that were made during the development of the improved STS. The industry and the NRC staff have used PRA to an even greater extent in the development and review of the technical specifications for advanced reactor designs.

The industry and the NRC staff are currently exploring several new approaches to utilizing PRA for technical specification improvements

including the use of on-line risk assessment tools. In addition, the industry and the NRC staff are using PRA to explore further improvements in technical specifications by examining the risks during shutdown and during the transition between modes of operation. As a part of this ongoing program of improving technical specifications, the Commission will continue to consider methods to make better use of risk and reliability information for defining future generic technical specification requirements.

During technical specification conversions, the staff will apply the backfit rule (§ 50.109) when adding new requirements from the improved STS to individual plant technical specifications, provided the licensee does not voluntarily accept the new requirements. If, however, the staff suggested additional changes are needed to make the licensee requested changes acceptable from the standpoint of adequate protection or compliance with NRC regulations, § 50.109(a)(2) and § 50.109(a)(3) do not apply and the request may be denied without the additional items.

Summary of Public Comments

The Commission received three letters commenting on the proposed rule. Each letter contained several comments.

One commenter representing the commercial nuclear industry expressed concern that there is insufficient regulatory guidance on how the NRC staff intends to implement this rule with respect to the fourth criterion (§ 50.36(c)(2)(ii)(D)). The commenter believes that this rule should not be modified until the NRC and the industry have reached a common understanding of the application, threshold, and intent of Criterion 4. The commenter stated, "It is our view, and the Commission apparently recognizes, that this criterion goes beyond the adequate protection standard for public health and safety and license compliance purposes embodied in the first three criteria."

Similar to this comment on the proposed rule, the Advisory Committee on Reactor Safeguards (ACRS) commented in a June 18, 1993, letter to the Chairman that the NRC staff needs to provide more detailed guidance on the definition of "significant to public health and safety," as it is used in Criterion 4.

Criterion 4 is intended to capture those constraints that probabilistic risk assessment or operating experience show to be significant to public health and safety, consistent with the Commission's PRA Policies. The level of significance either would need to be

such that it justified including the constraints in the technical specifications to ensure adequate protection of the public health and safety or that the addition of such constraints provides substantial additional protection to the public health and safety.

The Commission identified four systems that meet Criterion 4 in the final policy statement based on previous qualitative reviews of operating experience and risk. They are reactor core isolation cooling/isolation condenser, residual heat removal, standby liquid control, and recirculation pump trip. The Commission recognizes, however, that other structures, systems, or components may meet this criterion. Plant- and design-specific PRAs have yielded valuable insight to unique plant vulnerabilities not fully recognized in the safety, design basis accident, or transient analyses.

The NRC's current regulatory requirements are largely based on deterministic engineering criteria involving the use of multiple barriers and defense in depth. Recently, the NRC staff has formulated a comprehensive plan for the application of PRA technology and insights throughout the agency. It is expected that the PRA Implementation Plan will serve as the framework for continued and future applications of PRA at the NRC. Implementation of this plan will increase the systematic use of risk assessment techniques. To ensure consistent and appropriate decision-making that incorporates PRA methods and results, it is important that coherent and clear application guidelines are applied. As part of the PRA Implementation Plan, such guidelines will be established (incorporating safety goals and backfit rule considerations) that address the interdependence of probabilistic risk and deterministic engineering principles. The process of developing these guidelines will involve communications among the NRC staff, the nuclear industry, and the public to ensure that all parties understand the role of PRA methods and results in NRC's risk management efforts. The NRC staff anticipates that, as it gains experience with the development and use of such PRA application guidelines, it will be better able to refine such phrases as "significant to public health and safety," and other phrases that are used in many of the Commission's regulations.

The Commission could delay publication of this final rule until the PRA application guidelines are in place. However, the Commission believes that the experience gained while using the

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criteria under the interim and final policy statements combined with the limitations imposed on the NRC staff by the backfit rule provide assurance that, in the interim, the staff's use of Criterion 4 to apply PRA to technical specification content will be properly controlled. The Commission has concluded that it is appropriate to publish this final rule, which provides the framework for technical specifications, at this time.

One commenter stated that the PRA portion of the fourth criterion should be clarified to include only those equipment items important to risk-significant sequences as defined in Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities," Appendix 2, and reported in licensees' individual plant examination (IPE) reports.

The IPE program has resulted in commercial reactor licensees using risk-assessment methods to identify plant-specific severe accident vulnerabilities. Since submittal of their IPE reports, many licensees have enhanced their plant-specific PRAs and have gained additional insights into unique plant vulnerabilities. These additional insights from PRAs are being used by licensees in such areas as implementation of the maintenance rule.

As stated in the Commission's "Proposed Policy Statement on the Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," the use of PRA technology should be increased in all regulatory matters to the extent supported by the state of the art in PRA methods and data and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy. The Commission will continue to apply PRA to technical specifications in accordance with its proposed policy statement on the use of PRA. In addition, guidance for specific applications or classes of applications will be developed under the PRA Implementation Plan. The Commission believes this is a more appropriate means to define how Criterion 4 will be used in practice, rather than to limit the structures, systems, and components captured by Criterion 4 to those items important to risk-significant sequences as defined in Generic Letter 88-20, Appendix 2, and reported in licensees' IPE reports. The Commission believes that this process will provide the NRC staff and the industry with additional risk insights, beyond those identified through the IPE program.

The same commenter said that the operating experience portion of the

fourth criterion should be deleted because it is subjective and because no equipment would satisfy only that portion of the fourth criterion and none of the other criteria.

While operating experience is an important part of PRA, not all PRA models are sophisticated enough to capture all operating experience. The Commission believes that operating experience can play an important role in determining the safety significance of structures, systems, and components and that there will be no adverse impact by including operating experience as part of Criterion 4.

One commenter emphasized that the development of implementation guidance, especially with respect to Criterion 4, should be consistent with the implementation guidance of the maintenance rule.

As stated previously, the Commission believes that the improved STS, the final policy statement, the backfit rule (§ 50.109), and the statement of consideration for this rule contain sufficient guidance on implementation of the criteria to proceed with rulemaking. Supplementary guidance will continue to be provided to the NRC staff that will support the process for implementing the four criteria on both a generic and plant-specific basis, and will be publicly available. The NRC staff will ensure that any guidance documents that relate to the implementation of the four criteria will be consistent with the implementation guidance of the maintenance rule along with the guidance for other rules promulgated by the Commission.

One commenter expressed a concern with respect to the level of PRA information necessary to support the relocation of existing technical specifications which do not meet the first three criteria.

If a technical specification provision does not meet any of the first three criteria, and if the current PRA knowledge or operating experience does not identify the structure, system, or component as risk significant, the NRC staff will not preclude relocating such technical specifications. The level of PRA information necessary to support relocation would be considered as part of the overall review of the supporting basis for the proposed change. The Commission expects that licensees will utilize PRA insights to indicate whether the provisions to be relocated contain constraints of importance in limiting the likelihood or severity of the accident sequences that are commonly found to dominate risk.

One commenter stated that the implementing guidance needs to be

clear on how the proposed criteria would be used to determine if new requirements are to be incorporated into technical specifications.

The Commission believes that the improved STS, the final policy statement, the backfit rule (§ 50.109), and the statement of consideration for this rule contain sufficient guidance on implementation of the criteria. The staff will also ensure that application of the criteria to new requirements is consistent with the guidance in the draft "Regulatory Analysis Guidelines," Revision 2, published in August 1993 (NUREG/BR-0058), and the final version of Revision 2 when it is approved by the Commission. In addition, the NRC has recently published NUREG/CR-6141, "Handbook of Methods for Risk-Based Analyses of Technical Specifications," December 1994, which summarizes systematic risk-based methods to improve various aspects of technical specification requirements. The handbook was developed through research sponsored by the NRC and will be used as a reference document to assist the NRC staff in reviewing licensees' risk-based analyses submitted as part of the bases for proposed changes in facility technical specifications. This guidance will be updated periodically to incorporate lessons learned and changes in the state of the art, will help ensure the criteria are applied in a consistent and controlled manner, and will be publicly available. As stated above, as part of the PRA Implementation Plan, PRA application guidelines will be established (incorporating safety goals and backfit rule considerations) that address the interdependence of probabilistic risk and deterministic engineering principles. As these application guidelines develop, they will progressively be used to provide guidance to the NRC staff on the use of the criteria contained in this rule and the application of the backfit rule to new regulatory requirements.

One commenter stated that the same or similar criteria to those in the rule should also be applied to 10 CFR 50.36(c)(3), (4), and (5), so that surveillance requirements, design features, and administrative controls which do not provide the necessary "adequate protection of the health and safety of the public" can be relocated to other licensee-controlled documents.

With respect to § 50.36 (c)(3), "Surveillance Requirements," the Commission stated in the final policy statement that appropriate surveillance requirements and actions should be retained for each LCO which remains or

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is included in the technical specifications.

The criteria in § 50.36(c)(2) apply to safety functions. Therefore, the Commission does not believe that these criteria can be appropriately applied to the types of requirements found in the "design features" and "administrative controls" sections of the technical specifications. The NRC staff has, however, been pursuing separate improvements to these requirements, in cooperation with industry, using the intent of the criteria to identify the optimum set of requirements in each of these areas and to eliminate redundancy to other regulations consistent with the minimum requirements of § 50.36 and the Atomic Energy Act, as amended.

One commenter stated that the removal of items from plant technical specifications may decrease enforceability and licensee attention to safety.

The Commission does not agree that the removal of items from plant technical specifications will decrease licensee attention to safety. On the contrary, the Commission believes that implementation of the criteria contained in this rule will produce an improvement in the safety of nuclear power plants through the use of more operator-oriented technical specifications, improved technical specification bases, reduced action statement induced plant transients, and more efficient use of NRC and industry resources. Clarification of the scope and purpose of technical specifications has provided useful guidance to both the NRC and industry and has resulted in improved technical specifications that are intended to focus licensee and plant operator attention on those plant conditions most important to safety.

The Commission also does not agree that the removal of items from plant technical specifications will have any adverse impact on the NRC's ability to take enforcement action on safety-significant issues. The improved STS are intended specifically to focus on the operating plant parameters and associated surveillance criteria of safety significance. The Commission requires compliance with technical specifications, and expects adherence to commitments contained in licensee-controlled documents. Violations and deviations will, as in the past, be handled in accordance with the NRC enforcement policy in 10 CFR Part 2, Appendix C. Any changes to a licensee's technical specifications to apply these criteria will be made by the licensee amendment process prior to implementation.

When a licensee elects to apply these criteria, some requirements are relocated from technical specifications to the FSAR or to other licensee-controlled documents. Licensees are to operate their facilities in conformance with the descriptions of their facilities and procedures in their FSAR. Changes to the facility or to procedures described in the FSAR are to be made in accordance with 10 CFR 50.59. The Commission will take appropriate enforcement action to ensure that licensees comply with 10 CFR 50.59. Changes made in accordance with the provisions of other licensee-controlled documents (e.g., QA plan, security plan) are subject to the specific requirements for those documents. Nothing in this rule limits the authority of the NRC to conduct necessary inspections and to take appropriate enforcement action when regulatory requirements or commitments are not met.

The same commenter stated that the removal of items from plant technical specifications will diminish public participation rights in the regulation of operating nuclear power plants by diminishing the universe of potential operating license amendment cases.

Any changes to a licensee's technical specifications to apply these criteria will be made by the licensee amendment process before implementation. The review of each license amendment will involve an opportunity for public participation. One of the goals of the technical specifications improvement program was to make more efficient use of NRC and industry resources by focusing attention on those plant conditions most important to safety and, in turn, reducing the number of license amendment requests. Since 1969, there has been a trend toward including in technical specifications not only those requirements derived from the analyses and evaluations included in the safety analysis report but also essentially all other Commission requirements governing the operation of nuclear power reactors. This extensive use of technical specifications is due in part to a lack of well-defined criteria (in either the body of the rule or in some other regulatory document) for what should be included in technical specifications. This has contributed to the volume of technical specifications and to the several-fold increase, since 1969, in the number of license amendment applications to effect changes to the technical specifications. It has diverted both NRC staff and licensee attention from the more important requirements in these documents to the extent that it has resulted in an adverse but unquantifiable impact on safety.

The commenter found it curious that an industry and an agency that claim to be able to quantify the risks of nuclear power are unable to quantify this impact on safety, and stated, "Perhaps if it is unquantifiable, the alleged adverse impact does not really exist."

The Commission agrees that there are limitations and uncertainties in the ability to quantify the impact on safety described above. Uncertainties exist in any regulatory approach and these uncertainties are derived from knowledge limitations. A probabilistic approach has exposed some of these limitations and yielded an improved framework to better focus and assess their significance and assist in developing a strategy to accommodate them in the regulatory process. The Commission does not intend, however, to let these limitations prevent it from taking steps to improve the regulations in a manner that will have substantial safety benefits. The Commission believes the public will be better served by focusing both NRC and industry attention on the most safety-significant items.

The NRC staff has made three changes to this rule since it was published in its proposed form. The first change was made in order to maintain consistency with other NRC staff and Commission documents that have been issued since this rule was published in its proposed form. In § 50.36(c)(2)(ii)(D), the term "probabilistic safety assessment" has been changed to "probabilistic risk assessment."

The second and third changes are in § 50.36(c)(2)(iii). The beginning of the first sentence was changed to read, "A licensee is not required to *propose* to modify technical specifications * * *" rather than "A licensee is not required to modify technical specifications * * *" This change was made to clarify that a licensee would be required to modify their technical specifications if the Commission determined that a new requirement was necessary in accordance with the backfit rule and the new requirement met one of the four criteria contained in § 50.36(c)(2)(ii).

The third change is the deletion of the last sentence in § 50.36(c)(2)(iii). The sentence read, "However, for technical specification amendments a licensee proposes after August 18, 1995, the criteria in paragraph (c)(2)(ii) of this section provide an acceptable scope for limiting conditions for operation." This sentence was deleted because it did not add or modify any requirements and the thought is adequately expressed in this statement of consideration.

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Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission regulations in Subpart A of Part 51, that this final rule is not a major Federal action significantly affecting the quality of the human environment and will not degrade the environment in any way. Therefore, the Commission concludes that there will be no significant impact on the environment from this rule. This discussion constitutes the environmental assessment and finding of no significant impact for this rule; a separate assessment has not been prepared.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Regulatory Analysis

The Commission has determined that a regulatory analysis is not required for this rule. The Commission believes that the intent of the regulatory analysis has been met through the extensive consideration given to the development of the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" and the improved STS, both of which gave the public an opportunity for comment. In addition, the determination that no regulatory analysis is necessary was noted in the Federal Register Notice for the proposed rule, and the NRC received no comments on this issue.

The criteria being added to § 50.36 are the same as those contained in the final policy statement and have been used by the NRC and the nuclear power industry to define the content of technical specifications since September 1992. The rule does not impose any requirements but, rather, allows nuclear power reactor licensees to voluntarily use the criteria to relocate existing technical specifications that do not meet any of the criteria to licensee-controlled documents. The NRC staff also uses these criteria to determine whether technical specifications are appropriate to provide regulatory control over new requirements or positions that have been justified consistent with the backfit rule.

The Commission considered the need for and consequences of this action when it made the decision not only to

publish the criteria in the final policy statement but also to codify the criteria through rulemaking. Appropriate alternative approaches to this action have been identified and analyzed over the life of the Technical Specifications Improvement Program, beginning with an earlier attempt to define the content of technical specifications through rulemaking. As described in the background discussion, the Commission published a proposed amendment to § 50.36 (47 FR 13369) on March 30, 1982. However, because of difficulties with defining criteria for technical specifications and because of other higher priority licensing work, the rule change was deferred. In February 1987, the Commission published an "Interim Policy Statement on Technical Specification Improvements for Nuclear Power Reactors," and in July 1993, published the final policy statement. During its review of the final policy statement, the Commission concluded that the four criteria should be codified in a rule. Thus, alternative approaches to regulatory objectives have been identified and analyzed, and the Commission has decided that there is no preferable alternative to codifying the four criteria in a rule. With regard to evaluation of values and impacts of alternatives, the Commission believes there is no difference in the values or impacts of applying the criteria under the final policy statement or through a rule, except that the criteria are more readily available to future users in a rule rather than in a policy statement.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" as given in the Regulatory Flexibility Act or the Small Business Size Standards in regulations issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

The NRC has determined that the backfit rule, § 50.109, does not apply to this final rule and, therefore, a backfit analysis is not required for this final rule because these amendments do not involve any provisions that would impose backfits as defined in § 50.109(a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons given in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to Part 50.

60 FR 49495
Published 9/26/95
Effective 10/26/95

10 CFR Part 50

RIN 3150-AF00

Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to provide a performance-based option for leakage-rate testing of containments of light-water-cooled nuclear power plants. This option is available for voluntary adoption by licensees in lieu of compliance with the prescriptive requirements contained in the current regulation. This action improves the focus of the regulations by eliminating prescriptive requirements that are marginal to safety. The final rule allows

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test intervals to be based on system and component performance and provides licensees greater flexibility for cost-effective implementation methods of regulatory safety objectives.

EFFECTIVE DATE: October 26, 1995.

FOR FURTHER INFORMATION CONTACT: Dr. Moni Dey, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-8443, e-mail mkd@nrc.gov

SUPPLEMENTARY INFORMATION:

Background—Development of Proposed Rule

NRC's Marginal-to-Safety Program

In 1984, the NRC staff initiated a program to make regulatory requirements more efficient by eliminating those with marginal impact on safety. The NRC's initiative to eliminate requirements marginal to safety recognizes both the dynamic nature of the regulatory process and that the importance and safety contribution of some existing regulatory requirements may not have been accurately predicted when adopted or may have diminished with time. The availability of new technical information and methods justify a review and modification of existing requirements.

The NRC solicited comments from industry on specific regulatory requirements and associated regulatory positions that needed reevaluation. The Atomic Industrial Forum conducted a survey providing most of industry's input, published for the NRC as NUREG/CR-4330¹, "Review of Light Water Reactor Regulatory Requirements," Vol. 1, April 1986. A list of 45 candidates for potential regulatory modification were identified. The NRC's review of the list selected Appendix J as one of seven areas requiring further analysis (NUREG/CR-4330, Vols. 2 and 3, dated June 1986 and May 1987). The NRC also conducted a survey of its staff on the same issue. The NRC staff survey identified 54 candidates for regulatory modification, a number of which were previously identified in the industry survey. The NRC's assessment of this

list also selected Appendix J as a potential candidate for modification.

The NRC published in the Federal Register, for comment, a proposed revision to Appendix J on October 29, 1986 (51 FR 39538) to update acceptance criteria and test methods based on experience in applying the existing requirements and advances in containment leak testing methods, to resolve interpretive questions, and to reduce the number of exemption requests. This proposed rule was withdrawn from further consideration and superseded with a more comprehensive revision of Appendix J.

The NRC published a notice in the Federal Register on February 4, 1992 (57 FR 4166), presenting its conclusion that Appendix J was a candidate whose requirements may be relaxed or eliminated based on cost-benefit considerations. On the basis of NRC staff analyses of public comments on the proposal, the Commission approved and announced on November 24, 1992 (57 FR 55156) its plans to initiate rulemaking for developing a performance-oriented and risk-based regulation for containment leakage-testing requirements. On January 27, 1993, (58 FR 6196) the NRC staff published a general framework for developing performance-oriented and risk-based regulations and, at a public workshop on April 27 and 28, 1993, invited discussions of specific proposals for modifying containment leakage-testing requirements. Industry and public comments on the proposals, and other recommendations and innovative ideas raised at the public workshop, were documented in the proceedings of the workshop (NUREG/CP-0129, September 1993). Specifically, the NRC concluded that the allowable containment leakage rate utilized in containment testing may be increased and other Appendix J requirements need not be as prescriptive as the current requirements. To increase flexibility, the detailed and prescriptive technical requirements contained in Appendix J regulations could be improved and replaced with performance-based requirements and supporting regulatory guides. The regulatory guides would allow alternative approaches, although compliance with existing regulatory requirements would continue to be acceptable. The performance-based requirements would reward superior operating practices.

The present rulemaking is part of this overall effort and initiative for eliminating requirements that are marginal to safety and is guided by the policies, framework and criteria for the

program. A more comprehensive proposed rule than that proposed in 1986 that accounts for the latest technical information and regulatory framework, using performance-oriented and risk-based approaches, was published by the NRC in the Federal Register on February 21, 1995. The public comment period for the proposed rule closed May 8, 1995.

NRC's Regulatory Improvement Program

The NRC's marginal-to-safety initiative is part of a broader NRC initiative for regulatory improvement. Through its Program for Regulatory Improvement, the NRC has institutionalized an ongoing effort to eliminate requirements marginal to safety and to reduce the regulatory burden on its licensees. The NRC staff's plan, summarized in SECY-94-090, dated March 31, 1994, satisfies the requirement for a periodic review of existing regulations given in Executive Order 12866 of September 30, 1993. This plan was approved by the Commission on May 18, 1994. The Regulatory Improvement Program is aimed at the fundamental principle adopted by the Commission that all regulatory burdens must be justified and that its regulatory process must be efficient. In practice, this means the elimination or modification of requirements for which burdens are not commensurate with their safety significance. The activities of the Regulatory Improvement Program should result in enhanced regulatory focus in areas that are more safety significant. As a result, an overall net increase in safety is expected from the program.

The Regulatory Improvement Program will include, whenever feasible and appropriate, the consideration of performance-oriented and risk-based approaches. The program will review requirements or license conditions that are identified as a significant burden on licensees. If review and analysis find that the requirements are marginal to safety, they will be eliminated or relaxed. By performance-oriented, the NRC means establishing regulatory objectives without prescribing the methods or hardware necessary to accomplish the objective, and allowing licensees the flexibility to propose cost-effective methods for implementation. By risk-based, the NRC means regulatory approaches that use probabilistic risk analysis (PRA) as the systematic framework for developing or modifying requirements.

In institutionalizing the Regulatory Improvement Program and adopting a performance-based regulatory approach,

¹ Copies of NUREGs may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P. O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is available for inspection and/or copying in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

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the NRC has formulated the following framework for revisions to its regulations:

(1) The new performance-based regulation will be less prescriptive and will allow licensees the flexibility to adopt cost-effective methods for implementing the safety objectives of the original rule.

(2) The regulatory safety objectives will be derived, to the extent feasible and practical, from risk considerations with appropriate consideration of uncertainties, and will be consistent with the NRC's Safety Goals.

(3) Detailed technical methods for measuring or judging the acceptability of a licensee's performance relative to the regulatory safety objectives will be, to the extent practical, provided in industry standards and guidance documents which are endorsed in NRC regulatory guides.

(4) The new regulation will be optional for current licensees so that licensees can decide to remain in compliance with current regulations.

(5) The regulation will be supported by necessary modifications to, or development of, the full body of regulatory practice including, for example, standard review plans, inspection procedures, guides, and other regulatory documents.

(6) The new regulation will be formulated to provide incentives for innovations leading to improvements in safety through better design, construction, operating, or maintenance practices.

Current Appendix J Requirements

Appendix J to 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," became effective on March 16, 1973. The regulatory safety objective of reactor containment design is stated in 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," Criterion No. 16, "Containment Design." GDC Criterion 16 mandates "an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment * * *" for postulated accidents. Appendix J to 10 CFR Part 50 implements, in part, General Design Criterion No. 16 and specifies containment leakage-testing requirements, including the types of tests required. For each type of test required, Appendix J specifies how the tests should be conducted, the frequency of testing, and reporting requirements. Appendix J requires the following types of containment leak tests:

(1) Measurement of the containment integrated leakage rate (Type A tests, often referred to as ILRTs).

(2) Measurement of the leakage rate across each pressure-containing or leakage-limiting boundary for various primary reactor containment penetrations (Type B tests).

(3) Measurement of the containment isolation valves leakage rates (Type C tests).

Type B and C tests are referred to as local leakage-rate tests (LLRTs).

Leak-Tightness Requirements

Compliance with 10 CFR Part 50, Appendix J, requirements is determined by comparing the measured containment leakage rate with the maximum allowable leakage rate. Maximum allowable leakage rates are calculated in accordance with 10 CFR Part 100, "Reactor Site Criteria," and are incorporated into the technical specifications. Typical allowable leakage rates are 0.1 percent of containment volume per day for pressurized water reactors (PWRs) and one volume percent per day for boiling water reactors (BWRs).

Test Frequency Requirements

Schedules for conducting containment leakage-rate tests are specified in Appendix J for both preoperational and periodic tests. Periodic leakage-rate test schedules are as follows:

Type A Tests

(1) After the preoperational leakage-rate test, a set of three Type A tests must be performed at approximately equal intervals during each 10-year service period. The third test of each set must be conducted when the plant is shut down for the 10-year plant in-service inspection.

(2) The performance of Type A tests must be limited to periods when the plant facility is nonoperational and secured in the shutdown condition under administrative control and in accordance with the safety procedures defined in the license.

(3) If any periodic Type A test fails to meet the applicable acceptance criteria, the test schedule applicable to subsequent Type A tests will be reviewed and approved by the Commission. If two consecutive periodic Type A tests fail to meet the applicable acceptance criteria, a Type A test must be performed at each plant shutdown for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests meet the

acceptance criteria, after which time the regular retest schedule may be resumed.

Type B Tests

(1) Except for airlocks, Type B tests must be performed during reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years. If opened following a Type A or B test, containment penetrations subject to Type B testing must be tested prior to returning the reactor to an operating mode requiring containment integrity. For primary reactor containment penetrations employing a continuous leakage monitoring system, Type B tests, except for tests of airlocks, may be performed at every other reactor shutdown for refueling but in no case at intervals greater than 3 years.

(2) Airlocks must be tested prior to initial fuel loading and at six-month intervals thereafter. Airlocks opened during periods when containment integrity is not required by the plant's technical specifications must be tested at the end of such periods. Airlocks opened during periods when containment integrity is required by the plant's technical specifications must be tested within 3 days after being opened. For airlock doors opened more frequently than once every 3 days, the airlock must be tested at least once every 3 days during the period of frequent openings. For airlock doors having testable seals, testing the seals fulfills the 3-day test requirement. Airlock door-seal testing must not be substituted for the 6-month test of the entire airlock at not less than P_{cc} , the calculated peak containment pressure related to the design basis accident.

Type C Tests

Type C tests must be performed during each reactor shutdown for refueling, but in no case at intervals greater than 2 years.

There have been two amendments to this Appendix since 1973. The first amendment, published September 22, 1980 (45 FR 62789), modified the Type B penetration test requirements to conform to what had become accepted practice through the granting of exemptions. The second amendment, published November 15, 1988 (53 FR 45890), incorporated the Mass Point Statistical Analysis Technique as a permissible alternative to the Total Time and Point-to-Point techniques specified in Appendix J.

International Experience

A combination of Type A tests and an on-line monitoring (OLM) capability is being actively pursued in Canada and

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Europe, notably in France and Belgium, and is currently being considered in Sweden. OLM is used to identify a "normal" containment pressurization pattern and to detect deviations from that pattern. With on-line, low-pressure testing, Hydro-Quebec's Gentilly-2 station is able to monitor the change in containment leaktightness between Type A tests. The Belgians conduct a leakage test using OLM during reactor operation after each cold shutdown longer than 15 days with the objective of detecting gross leaks. The objective of the Belgian approach to Type A testing is to reduce the frequency and duration of the tests. The Type A test is conducted at a containment pressure (P) not less than half of the peak pressure (0.5 P_h). It is performed once every 10 years. In France, containment leaktightness is continuously monitored during reactor operation in all of the French PWR plants using the SEXTEN system. It is also being evaluated by the Swedes for their PWR units. Leaks may be detected during the positive or negative pressure periods in the containment by evaluating the air mass balance in the containment. Type A tests are conducted at containment peak pressure (loss-of-coolant accident pressure) before initial plant startup, during the first refueling, and thereafter every 10 years unless a degradation in containment leaktightness is detected. In that case, tests are conducted more frequently.

Further details of international approaches to containment testing are provided in NUREG-1493.

Advance Notices for Rulemaking

Over time, it has become apparent that variations in plant design and operation frequently make it difficult to meet some of the requirements contained in Appendix J because of its prescriptive nature. Economic and occupational exposure costs are directly related to the frequency of containment testing. Containment integrated leakage-rate tests (Type A) preclude any other reactor maintenance activities and thus are on the critical path for return to service from reactor outages. In addition to the costs of the tests, integrated leak tests impose the added burden of the cost of replacement power.

Containment-penetration leak tests (Type B and C) can be conducted during reactor shutdowns in parallel with other activities and thus tend to be less costly; however, the large number of penetrations impose a significant burden on the utilities. Additionally, risk assessments performed to date indicate that the allowable leakage rate from containments can be increased,

and that control of containment leakage at the current low rates is not as risk significant as previously assumed.^{2,3}

In August of 1992, the NRC initiated a rulemaking to modify Appendix J to make it less prescriptive and more performance-oriented. The Commission also initiated a plan to relax the allowable containment leakage rate used to define performance standards for containment tests. In the *Federal Register* of January 27, 1993 (58 FR 6196), the NRC indicated the following potential modifications to Appendix J of 10 CFR Part 50 would be considered:

(1) Increase allowable containment leakage rates based on Safety Goals and PRA technology (i.e., define a new performance standard); and

(2) Modify Appendix J to be a performance-based regulation:

A. Limit the revised rule to a new regulatory objective. In order to ensure the availability of the containment during postulated accidents, licensees should either:

(i) Test overall containment leakage at intervals not longer than every 10 years, and test pressure-containing or leakage-limiting boundaries and containment isolation valves on an interval based on the performance history of the equipment; or

(ii) Provide on-line (i.e., continuous) monitoring of containment isolation status.

B. Remove prescriptive requirements from Appendix J and preserve useful portions as guidance in an NRC regulatory guide.

C. Endorse industry standards on:

(i) Guidance for calculating plant-specific allowable leakage rates based on new NRC performance standards;

(ii) Guidance on the conduct of containment tests; and

(iii) Guidance for on-line monitoring of containment isolation status.

D. Continue to accept compliance with the current detailed requirements in Appendix J (i.e., licensees presently in compliance with Appendix J will not need to do anything if they do not wish to change their practice).

²"Severe Accident Risks: An assessment for five U. S. Nuclear Power Plants, Final Summary Report." NUREG-1150, December 1990. Copies of NUREGs may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P. O. Box 37082, Washington, DC 20013/7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is available for inspection and/or copying in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

³"Performance-Based Containment Leak Test Program," NUREG-1493, July 1995.

A public workshop on the subject was held by the NRC on April 27 and 28, 1993.⁴

February 1995 Proposed Revision

Based on several advance notices for rulemaking and significant public comment and discussion, evaluation of risks and costs, and consideration of which modifications have become feasible and practical, in the February 21, 1995, *Federal Register* the NRC proposed two phases for modifications of requirements to containment leakage testing. The first phase allowed leakage-rate testing intervals to be based on the performance of the containment system structures and components. The second phase will further examine the needed requirements of the containment function (i.e. structural and leak-tight integrity of containment system structures and components, and prevention of inadvertent bypass), and include consideration of the potential for on-line monitoring of containment integrity to verify certain functions. Public comments were solicited to guide this future work.

The February 21, 1995, proposed rule applies to all NRC licensees who operate light-water-cooled power reactors. The proposed rule allows licensees the option of continuing to comply with the current Appendix J or to adopt the new performance-based standards.

The NRC's analyses are based upon the insight gained through the use of probabilistic risk assessment techniques and the significant data base of practical, hands-on operating experience gained since Appendix J was promulgated in 1973. This operating experience provides solid evidence of the activities necessary to conduct Appendix J testing, and the costs of those activities both in monetary terms and occupational radiation exposure.

The proposed rule is based on analytical efforts documented in NUREG-1493 which, like NUREG-1150, confirms previous observations of insensitivity of population risks from severe reactor accidents to containment leakage rates.

The current Appendix J requirements continue to achieve the regulatory criterion of assuring an essentially leak-tight boundary between the power reactor system and the external environment (General Design Criterion 16). Costs associated with complying with current Appendix J requirements are estimated to be \$165,000 for a

⁴"Workshop on Program for Elimination of Requirements Marginal to Safety," NUREG/CP-0129, September 1994.

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complete battery of Type B/C tests and \$1,890,000 for Type A tests. Over the average reactor's remaining lifetime of 20 years, the present value of all remaining containment leakage testing at a 5 percent discount rate is estimated to be about \$7 million per reactor. Estimates of the remaining industry-wide costs of implementing current Appendix J requirements ranged from \$720 to \$1,080 million, approximately 75 percent of which could be averted with a performance-based rule.

The Regulatory Analysis for the proposed rule finds that by allowing requirements to remain in effect with marginal impact on safety, but which impose a significant cost on licensees, is to have missed an opportunity to improve regulatory coherence and to focus NRC's regulations to areas where the return in terms of added public safety is higher.

Specific alternatives for modifying the current Appendix J were identified by the public in response to the NRC's Federal Register notice published on January 27, 1993 (58 FR 6196). Those whose characteristics matched the NRC's established criteria for the marginal to safety program were selected for further review.

Modifications of Advance NRC Proposal

Allowable Leakage Rate

The NRC had initially planned to establish, by rulemaking, a risk-based allowable leakage rate commensurate with its significance to total public risk. Specific findings from NUREG-1493 on the allowable leakage rate include:

1. Allowable leakage could be increased approximately two orders of magnitude (100-200 fold) with marginal impact on population dose estimates from reactor accidents.

2. Calculated risks to individuals are several orders of magnitude below the NRC's Safety Goals for all reactors considered.

3. Increases in the allowable leakage rate are estimated to have a negligible impact on occupational exposure.

Relaxing the allowable leakage rate is estimated to reduce future industry testing costs by \$50 to \$110 million, a 10 percent decrease in overall leakage-rate testing costs.

A risk-based allowable leakage rate would be based on an evaluation, using PRA, of the sensitivity and significance of containment leakage to risk, and the determination of an appropriate containment leakage limit commensurate with its significance to the risk to the public and plant control-room operators. However, this would have entailed a major change in policy

and restructuring of the current licensing basis and a more complete understanding of the uncertainties associated with the threat of severe accidents to the containment, and therefore, the NRC planned to develop a modification of the performance standard (allowable leakage level) in the second phase separate from modifications of testing requirements. This modification would be part of a broader effort to further examine the risk significance of various attributes of containment performance, i.e., structural and leak-tight integrity of containment-system structures and components, and inadvertent bypass.

On-Line Monitoring (OLM) Systems

Currently, there is no NRC requirement for systems which continuously monitor the containment to detect unintentional breaches of containment integrity.

Studies discussed in NUREG-1493, "Performance-Based Containment Leak Test Program," found that, based on operating experience, OLM would not significantly reduce the risk to the public from nuclear-plant operation and, thus, could not be justified solely on the basis of risk-based considerations. Specific findings include:

1. Existing continuous monitoring methods appear technically capable of detecting leaks in reactor containments within 1 day to several weeks. OLM systems are in use or planned in several European countries and Canada.

2. OLM systems are capable of detecting leaks only in systems that are open to the containment atmosphere during normal operation (approximately 10 percent of the mechanical penetrations).

3. The technical and administrative objectives of OLM systems and Type A tests are different.

4. OLM could not be considered as a complete replacement for Type A tests because it cannot challenge the structural and leak-tight integrity of the containment system at elevated pressures.

5. Analysis of the history of operating experience indicated a limited need for, and benefit of, OLM in the U.S.

Although OLM can not be justified solely based on risk considerations, a plant already possessing such a system has a greater assurance of achieving certain attributes of containment integrity. Therefore, OLM systems could contribute towards an overall leakage-monitoring scheme. Some capability for on-line monitoring already exists as a byproduct of specific containment designs. For example, licensees with

inerted BWR containments, or subatmospheric PWR containments, could possibly detect gross leakages that develop during normal operation.

Given that the application of on-line monitoring is specific to containment design, and generic application can not be justified solely on risk considerations, the NRC did not propose a requirement for OLMs. However, licensees with such a capability (e.g. inerted BWR containments, and subatmospheric PWR containments) were encouraged to propose plant-specific application of such a capability, and to take credit for any added assurance of containment integrity provided by such a system compared to other testing methods. The NRC proposed to reconsider the role of OLM in the second phase of modifications in this area along with the allowable leakage rate.

Proposed Modification of Type A, B, and C Test Intervals

In the February 1995 proposed rule, the NRC proposed a new risk-based regulation based on the performance history of components (containment, penetrations, valves) as the means to justify an increase in the interval for Type A, B, and C tests. The revised regulation requires tests to be conducted on an interval based on the performance of the containment structure, penetrations and valves without specifying the interval in the regulation. Currently, three Type A tests are conducted in every 10 year period. Type B (except airlocks, which are tested more frequently) and C tests are conducted on a frequency not to exceed 2 years.

The NRC proposed to base the frequency of Type A tests (ILRTs) on the historical performance of the overall containment system. Specific findings documented in NUREG-1493 that justify the proposal include:

1. The fraction of leakages detected only by ILRTs is small, on the order of a few percent.

2. Reducing the frequency of ILRT testing from 3 every 10 years to 1 every 10 years leads to a marginal increase in risk.

3. ILRTs also test the strength of the containment structure. No alternative to ILRTs has been identified to provide assurance that the containment structure would meet allowable leakage rates during design-basis accidents.

4. At a frequency of 1 test every 10 years, industry-wide occupational exposure would be reduced by 0.087 person-sievert (8.7 person-rem) per year.

Based on specific, detailed analyses of data from the North Anna and Grand

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Gulf nuclear power plants, and data from twenty-two nuclear plants (see NUREG-1493), performance-based alternatives to current LLRT methods are feasible with marginal impact on risk. Specific findings include:

1. Type B and C tests are capable of detecting over 97 percent of containment leakages.

2. Of the 97 percent, virtually all leakages are identified by LLRTs of containment isolation valves (Type C tests).

3. Based on the detailed evaluation of the experience of a single two-unit station, no correlation of failures with type of valve or plant service could be found.

4. For the 20 years of remaining operations, changing the Type B/C test frequency to once every 5 years for good-performing components is estimated to reduce industry-wide occupational radiation exposure by 0.72 person-sievert (72 person-rem) per year. If 20-year license extension is assumed, the estimate is 0.75 person-sievert (75 person-rem) per year.

Future industry testing costs are reduced by approximately \$330 to \$660 million if ILRT tests are conducted once every 10 years rather than the current 3 per 10 years. ILRT savings represent about 65 percent of the remaining costs of current Appendix J requirements. Performance-based LLRT alternatives are estimated to reduce future industry testing costs by \$40 million to \$55 million. LLRT savings represent about 5 percent of the total remaining costs of Appendix J testing.

Therefore, based on the risks and costs evaluated, and other considerations discussed above, a performance-based Appendix J was proposed which encompassed the following principles, which differ moderately from those first described in the *Federal Register* (January 27, 1993 58 FR 6197).

General (1) Make Appendix J less prescriptive and more performance-oriented; (2) Move details of Appendix J tests to a regulatory guide as guidance; (3) Endorse in a regulatory guide the industry guideline (NEI 94-01) on the conduct of containment tests (The methods for testing are contained in an industry standard (ANSI/ANS 56.8-1994) which is referenced in the NEI guideline); and (4) Allow voluntary adoption of the new regulation, i.e., current detailed requirements in Appendix J will continue to be acceptable for compliance with the modified rule.

Leakage Limits Acknowledge the less risk-significant nature of allowable

containment leakage but pursue its modification as a separate action.

Type A Test Interval (1) Based on the limited value of integrated leakage-rate tests (ILRTs) in detecting significant leakages from penetrations and isolation valves, establish the test interval based on the performance of the containment system structure; (2) The performance criterion of the test will continue to be the allowable leakage rate (La); (3) The industry guideline allows extension of the Type A test interval to once every 10 years based on satisfactory performance of two previous tests, inclusive of the pre-operational ILRT; (4) In the regulatory guide, the NRC takes exception to industry guidance for the extension of the interval of the general visual inspection of the containment system, and limits the interval to 3 times every 10 years, in accordance with current practice.

Type B & C Test Interval (1) Allow local leakage-rate test (LLRTs) intervals to be established based on the performance history of each component; (2) The performance criterion for the tests will continue to be the allowable leakage rate (La); (3) Specific performance factors for establishing extended test intervals (up to 10 years for Type B components, and 5 years for Type C components) are contained in the regulatory guide and industry guideline. In the regulatory guide, the NRC has taken exception to the NEI guideline allowing the extension of Type C test intervals up to 10 years, and limits such extensions to 5 years.

Summary of Public Comments

Twenty-six letters were received that addressed the policy, technical, and cost aspects of the proposed rulemaking, including the nine questions posed by the NRC in the February 21, 1995 proposed rule. All comments, including the ones received by the NRC after the deadline were considered. The commenters included 4 private citizens, 1 public interest group, 18 utilities, 1 nuclear utility industry group, 1 State regulatory agency, and 1 foreign regulator.

Although the proposed rule did not generate a significant number of public comments, the commenters did align themselves into two distinct groups: those who supported publishing the rule and those against. Those who supported publishing the rule comprise the vast majority of the commenters (22) and included the Nuclear Energy Institute (NEI), which represents the nuclear utility licensees, eighteen individual nuclear power plant licensee respondents, a Spanish regulatory authority and two private citizens (Mr.

Hill and Mr. Barkley). This group is very supportive of the Commission's risk-based regulatory program, and supports proceeding with the rule in an expeditious manner, despite having reservations about three specific provisions. The issues of most concern to this group are: (1) Licensee commitments to certain requirements of the regulatory guide implementing Appendix J testing via use of the technical specifications (industry would prefer using a plant's final safety analysis report); (2) requirements to conduct visual internal and external inspections of the containment on a frequency of 3 times per 10 years (industry would prefer once per 10 years to coincide with Type A tests); (3) making Option B of the proposed rule mandatory (industry would prefer to retain the optional feature); and (4) Type C test frequency (industry would prefer a 10-year test interval for certain Type C valves). Industry supports a future rulemaking to increase the allowable leakage rate.

Two private citizens (Mr. Arndt and Dr. Reyttblatt) are opposed to the proposed rule. The issues of most concern to these citizens are: (1) Type A test frequency (Mr. Arndt would prefer that frequencies be held at current levels); (2) Type A test methodology (Dr. Reyttblatt wants to halt Type A testing until the test accuracy is improved); (3) Type C test frequencies (Mr. Arndt believes the existing database does not support 10-year test intervals, and suggests 5-years as an upper limit at the present time); and (4) Leakage rate (a future rulemaking to increase the allowable leakage rate should not be undertaken).

Two organizations are opposed to the proposed rule. The Bureau of Nuclear Engineering of the state of New Jersey and the Ohio Citizens for Responsible Energy (OCRE, represented by Ms. Hiatt), a public interest group, expressed skepticism in the risk-based approach to regulation as embodied in the philosophy of the Marginal-to-Safety Program. The issues of most concern to this group are that: (1) Increases in public risk are not acceptable, no matter how marginal; and (2) A future rulemaking to increase the allowable leakage rate should not be undertaken.

NRC Position. With respect to the areas of disagreement between the NRC and those who generally support the proposed rule, no new information has been provided in the public comments that was not already addressed in ongoing dialogue. Accordingly, the NRC has not made any substantive changes to its proposed regulation. Specifically, the NRC has retained: (1) Its position of

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requiring the use of technical specifications; (2) The intervals established for visual examinations of containment; and (3) The 5-year Type C test interval.

With respect to the optional feature of the rule, the NRC agrees with the industry and has retained this feature. With respect to Mr. Arndt and Dr. Reytblatt, the NRC agrees in part with Mr. Arndt and has decided not to alter the LLRT test interval as noted in item (3). The other issues raised by Mr. Arndt and Dr. Reytblatt contain no information that has not been considered previously in a public forum. Therefore, the NRC has decided to make no substantive changes to its proposed rule as a result of the issues raised. With respect to the two organizations opposed to the proposed rule (OCRE and the NJ Bureau of Nuclear Engineering), neither has provided new information or a compelling reason to abandon the risk-based approach to regulation.

In its preliminary criteria for developing performance-based regulations, the NRC identified several issues to be addressed by the rulemaking process as a measure of the viability of the revised rule. These issues were addressed in the proposed rule and the NRC sought further public input on them. Comments were received on these topics in addition to other areas of interest to the public. The following is a summary of comments received on these issues and areas, and NRC's response. A complete discussion of all comments is included in the Public Comment Resolution Document.⁵

1. Can the new rule and its implementation yield an equivalent level of, or would it only have a marginal impact on safety?

Twenty-four commenters addressed this issue, offering a wide variety of opinions. Twenty commenters believe that implementation of the proposed rule will provide an equivalent level of safety to that provided by the current rule. A majority of commenters, representing for the most part nuclear utilities, believe that the proposed regulation will reduce the testing burden currently imposed on the nuclear industry, and will result in more efficient use of utility resources, while ensuring the health and safety of the public. They believe that the practical experience gained from more than 1,500 reactor-years of commercial nuclear power-plant operation provides

an appropriate basis to adjust the Appendix J testing intervals which were established over 20 years ago on the basis of engineering judgment. Further, these commenters believe that a significant reduction in occupational exposures can be achieved with reduced testing frequency.

Mr. E. Gunter Arndt, a private citizen, believes that the NRC has neither sufficient objective data nor perspective to justify increasing containment leakage rates, decreasing test frequencies, relaxing testing criteria, and reducing containment-system maintenance standards. Dr. Reytblatt, a private citizen, believes that Type A testing must be immediately suspended because the current testing methodology is flawed. Mr. Kent W. Tosch, Manager of New Jersey's Bureau of Nuclear Engineering, points out that the containment is an extremely important barrier to a release of radioactivity, but the philosophy reflected in this rulemaking is that this barrier can be allowed to become less reliable, even when some nuclear plants are showing signs of aging. Ms. Susan L. Hiatt, Director of Ohio Citizens for Responsible Energy, notes that relaxing the frequency of Appendix J tests leads to an increase in overall reactor risk of approximately 2 percent and, while the NRC may deem this to be marginal, it nonetheless is an increase in risk.

The NRC believes it has collected sufficient subjective and independent data to conduct its risk analysis. Detailed data from two independent power plants, representing four units, data supplied by the NEI representing approximately 30 additional units, and approximately 180 ILRT and licensee event reports were analyzed. These data produced consistent results. Dr. Reytblatt's views, while technically correct, have been opposed by several technically competent organizations including the American National Standards Institute, and Oak Ridge National Laboratory because the improvements he suggests will have an insignificant effect on measured containment leakage rates in practice and thus have no safety significance. The NRC believes there has been ample opportunity for public discussion of the basis for the Appendix J revisions.

Based on the foregoing, the NRC reaffirms its prior conclusion (stated in the February 21, 1995, Federal Register notice) that its safety objective for containment integrity can be maintained while at the same time reducing the burden on licensees. Additionally, the final rule provides a greater level of worker safety than that provided by the previous rule.

2. Can the regulatory/safety objective (qualitative or quantitative) be established in an objective manner to allow a common understanding between licensees and the NRC on how the performance or results will be measured or judged?

To avoid repetition, the NRC incorporated responses to this question with those of Question 3.

3. Can the regulation and implementation documents be developed in such a manner that they can be objectively and consistently inspected and enforced against?

Approximately 20 commenters expressed opinions on Questions #2 and #3. The majority of the commenters believe that regulatory/safety objectives can be established objectively, and can be consistently enforced, although opinions differ on the optimum enforcement mechanism. Mr. Fernando Robledo of the Spanish nuclear regulatory agency states that the use of probabilistic risk assessment in the regulatory process provides a more realistic and objective assessment of nuclear safety, and thus supports its increased use in the regulatory process. The NEI believes the use of technical specifications for inspection and enforcement is neither necessary nor warranted and that, rather than a licensee commitment in the plant technical specification, future licensee commitments to implement Option B should be provided by documentation in the updated Final Safety Analysis Report.

To assist in the common understanding of new methods of establishing Type A, B, and C test frequencies between the NRC and power reactor licensees, the NRC has had ongoing discussions with licensees. These discussions included participation in workshops designed to elicit a common understanding. Also, the NRC wishes to retain the current practice which requires its review and approval of changes to Appendix J performance limits and surveillance requirements. Therefore, the NRC has required that the regulatory guide should be specified in the technical specifications, an approach not inconsistent with the Commission's policy on technical specifications.

Based on the foregoing, the NRC reaffirms its prior conclusion (stated in the February 21, 1995, proposed rule) that it expects that its activities to date, the review and endorsement of a industry guideline in a regulatory guide, and the general reference of the regulatory guide in plant technical specifications, will provide a common

⁵ Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202) 634-3273; fax (202) 634-3343.

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understanding on the measures of compliance.

4. Should the proposed revision be made even less prescriptive?

Except for Mr. Hill and Mr. Barkley, commenters did not explicitly address this question, which was directed at the possibility of reducing, even further, the testing frequency of ILRTs based on the fact that there does seem to be a strong statistical link between passing or failing successive ILRTs. Mr. Hill believes that there is no need to make the rule less prescriptive, and it may be inferred that is no desire on the part of industry to further increase the testing interval between ILRTs or to eliminate them completely. Richard Barkley, although strongly supporting an adjustment to the frequency of Type A testing to once every 10 years, also discourages the NRC from adopting a Type A surveillance interval any longer than 10 years because of aging considerations.

The NRC has decided, in general, to maintain the present level of prescriptiveness in the proposed rule and, in particular, to not decrease further the test frequency for ILRTs. The NRC's position is guided by the desire to maintain some conservatism to address uncertainties and adopt an evolutionary approach wherein incentives remain for good performance.

5. Should the proposed revisions be made mandatory?

To avoid repetition, the NRC incorporated responses to this question with those of Question 7.

6. Was the definition of "backfit" in § 50.109(a)(1) intended to encompass rulemakings of the type represented by this proposed rule?

To avoid repetition, the NRC incorporated responses to this question with those of Question 7.

7. Is it appropriate for the Commission to waive the applicability of the Backfit Rule?

The majority of the 20 commenters believe that compliance with the performance-based Appendix J program should not be made mandatory. The NEI believes that rulemakings that provide relief from a current regulation but would also contain one or more new requirements (as is the case here) would be subject to the backfit rule. These commenters believe that application of the backfit rule would be necessary before the NRC could promulgate the performance-based Appendix J program as a requirement, believing some licensees might select, for reasons of cost, to continue to comply with the existing Appendix J.

The majority of commenters believe that the backfit rule would apply and

should not be waived. Several utilities have no objection to waiving a backfit analysis when clear relief is available, but are concerned with the generic implications of waiving the applicability of the backfit rule. The NEI believes that while the proposed Appendix J revisions would provide much needed performance-based improvements to the existing Appendix J, it would also impose new requirements; thus, the proposed rule constitutes a backfit. Further, this commenter believes that, as a matter of administrative law, an agency lacks authority to depart from its own rules, thus, it cannot waive its own regulations.

The NRC believes that if the rule were made mandatory, all licensees would incur costs setting up the procedures for implementing the rule's requirements following the guidance provided in the regulatory guide and the NEI guidance document. For those utilities whose circumstances (e.g., remaining plant life) would lead them to follow the current Appendix J, costs would be incurred with no additional benefit. Thus, the NRC agrees with the opinions expressed by the NEI and has decided to retain the proposed rule in its present form, which provides a non-mandatory alternative to the current Appendix J requirements. Because the NRC has decided to retain the optional feature of the proposed rule, the question of backfit is not addressed.

8. Should NRC pursue a fundamental modification of its regulations in this area by establishing an allowable leakage rate based on risk analysis (as presented in draft NUREG-1493, Chapter 5), as compared to the current practice of using deterministic design basis accidents and dose guidelines contained in 10 CFR Part 100; or should the NRC modify the allowable leakage rate within the current licensing basis by revising source terms and updating regulatory guides (R.G.s 1.3 and 1.4)⁶ for calculating doses to the public? What are the advantages and disadvantages of the two approaches? What are some other considerations than risk to public, e.g., plant control room habitability, that might limit the allowable leakage rate?

The 20 commenters who responded to this question consist predominantly of the utilities endorsing the NEI position. These respondents encourage the NRC

to pursue a rulemaking to alter allowable leakage rates using risk-based analysis, believing that a firm technical basis exists for relaxing leakage rates up to two orders of magnitude with only a marginal impact on population risk estimates. It was also suggested that a review of the present source terms, dose projection models, and associated assumptions against the revised source terms and dose methodologies should also be performed to determine if relief can be achieved while assuring public health and safety. Three commenters discouraged the NRC from relaxing containment leakage rates ranging from the opinion that little benefit would result (Mr. E. Gunter Arndt) to an unequivocal belief that such a move would violate a plant's licensing basis by eliminating the protection provided for the nearest public individual by the 10 CFR Part 100 siting criteria (Ms. S. Hiatt). Ms. Susan Hiatt, representing the Ohio Citizens for Responsible Energy, believes that containment leak rates should be periodically reexamined, not for the purpose of relaxing them, but to determine whether they should be made more stringent given increasing population density around operating nuclear power plants.

The NRC has decided to continue to pursue further reductions in regulatory burden with marginal impacts on safety and will address the complexities noted in the public comments in its future efforts to relax the allowable leakage rate.

9. If the allowable leakage rate is increased, could on-line monitoring of containment integrity replace other current containment tests? Could the results of the on-line monitoring be used to establish a new performance basis for containment integrity involving less stringent reporting requirements if there is high assurance there are no large leakage paths in containment (> 1 in. diameter).

The 18 commenters who responded to this question consist of the NEI and the utilities endorsing the NEI position, and Mr. Richard Barkley. The commenters do not believe that on-line monitoring (OLM) of containment integrity can replace many of the current containment tests, and state that OLM systems have very limited abilities to identify breaches in containment integrity. In the experience of Mr. Barkley, such systems add unnecessary plant complexity and cost.

The NRC acknowledges the public comments rendered and will be guided by them in decisions yet to be made regarding the Phase 2 effort.

10. Are there any other regulatory approaches and technical methods by

⁶ Copies may be purchased at current rates from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone 202-512-2249 or 202-512-2171); or from the National Technical Information Service by writing NTIS at Port Royal Road, Springfield, VA 22161.

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which the NRC can adopt a complete performance and risk basis to its regulations for containment leak-tight integrity? What are some of the attributes for performance, and what risk-based methods can be used to analyze these attributes?

The NEI, speaking for all other utilities, addressed this question by stating that it had not conducted any analyses to determine whether any other regulatory approaches and technical methods by which the NRC can adopt a complete performance and risk basis to its regulations for containment leak-tight integrity.

11. Rulemaking Documents.

Seventeen commenters expressed opinions about NRC's regulatory policy decisions and/or specific language in the rule or its supporting documents. Mr. Hill believes that the NRC's and the NEI's guidance documents are not developed to the point of establishing a common understanding of how to meet NRC's regulatory and safety objectives (e.g., while NEI 94-01 contains a lot of information and solid guidance, it also contains inconsistencies, contradictions and unclear passages). The NEI, whose comments were endorsed by most responding licensees, proposed modifications to several of the rulemaking documents, including the *Federal Register* notice and its own guidance document.

The NRC has amended its rule and accepts most of the revisions to the implementing documents to clarify language and achieve consistency between the rulemaking documents.

12. Technical Issues.

Testing Frequency

Twenty-four commenters expressed opinions on test frequency, the majority were supportive of 10-year intervals for both Types A, B and C tests. Regarding ILRTs, the Nuclear Energy Institute, several individual utilities, and Mr. Howard Hill expressed views that the proposed rule provides an acceptable testing frequency for ILRTs. Mr. Fernando Robledo, of the Spanish nuclear regulatory agency, believes that 10 years is too long a time interval between Type A containment tests. Mr. E. Gunter Arndt's view is that a preoperational test should not count as one of the two successful ILRT tests required to go to a 10-year test interval because preoperational conditions are not at all representative of operating conditions. The citizens' group, Ohio Citizens for Responsible Energy, believes the frequency of containment leak-rate testing should remain unchanged from the current practice.

Several commenters also expressed opinions on the NRC's position on LLRT testing frequency. Mr. Fernando Robledo, while agreeing in general with the test frequency for type B and C tests proposed in the draft regulatory guide, believes that certain mechanical penetrations particularly important for plant safety should be leak tested every 24 months. Mr. E. Gunter Arndt's view is that the testing history of penetrations, and especially of valves, does not support leaving them untested for 10 years and suggested that an upper limit should be once every 5 years. One utility in particular, and the Nuclear Energy Institute in general believe that the NRC does not go far enough in citing that several sets of data justify 10-year LLRT intervals. In contrast, Mr. Richard Barkley, who also endorses Type B & C testing frequency based on performance, strongly supports the NRC's proposal to prohibit the adoption of Type C surveillance intervals longer than 60 months.

In establishing the 5-year test interval for LLRTs, the NRC has designed a cautious, evolutionary approach as data are compiled to minimize the uncertainty now believed to exist with respect to LLRT data. The NRC's judgment, based on risk assessment and deterministic analysis, continues to be that the limited database on unquantified leakages and common mode and repetitive failures introduces significant uncertainties into the probabilistic risk analysis. The NRC will be open to submittals from licensees as more performance-based data are developed. The extension of LLRT test interval to 5 years is a prudent first step. By allowing a 25 percent margin in testing frequency requirements, the NRC has provided the flexibility to accommodate longer fuel cycles. With respect to the 10-year interval for ILRTs, the NRC believes its technical support document (NUREG-1493) is persuasive by demonstrating that testing intervals could be increased up to once every 20 years with an imperceptible increase in risk, using actual ILRT data which accounted for random and plant-specific failures and plant aging effects.

Based on the foregoing discussion, the NRC has decided to retain the 60-month Type C test interval and the 120-month interval for Type A and B tests. In response to public comments, the NRC has revised the regulatory guide to limit the extension of test intervals for main steam and feedwater isolation valves in BWRs, and containment purge and vent valves in PWRs and BWRs beyond 30 months given their operating experience and/or safety significance.

Test Pressures

Two commenters expressed opinions on the magnitude of the pressures used in conducting Type A leakage tests. Northern States Power Company believes that Type A testing at full pressure is unnecessary and believes that visual inspection coupled with a reduced pressure test will adequately assure that the containment structural members are leak-tight, especially since reduced pressure Type A tests are legally acceptable tests as prescribed in the current 10 CFR Part 50, Appendix J. Mr. E. Gunter Arndt states that while Type A tests performed at reduced pressure rather than peak accident pressure are economically advantageous to the industry, the results of these tests are not necessarily indicative of leakage rates during accidents.

The NRC believes that extrapolating low pressure leakage-test results to full pressure leakage-test results has turned out to be unsuccessful. The NRC believes that the peak calculated accident pressure: (1) Is consistent with the typical practice for NRC staff evaluations of accident pressure for the first 24 hours in accordance with Regulatory Guides 1.3 and 1.4; (2) Provides at least a nominal check for gross leak paths which might exist at high test pressures, but not at low test pressures; and (3) Directly represents technical specification leakage-rate limits, and provides greater confidence in containment system leak-tight integrity.

Based on the foregoing, the NRC has decided to retain the calculated design basis loss-of-coolant accident peak pressure as the ILRT test pressure.

Containment Inservice Visual Inspection

Eighteen commenters expressed opinions on this issue. The NEI and most utilities oppose the NRC's proposal to require visual examination of containment be performed 3 times every 10 years. These commenters suggest that this issue be taken up in a parallel rulemaking.

The NRC finds the industry's arguments for relaxing the frequency of containment visual inspections to be unpersuasive. Because the visual examination is not integral to the ILRT (i.e., may be performed independently) and because the NRC sees benefits to the early detection of unknown aging mechanisms which may be active, the NRC considers it prudent to conduct visual inspections on a frequency greater than the ILRT. Further, the NRC believes it is inappropriate to defer a requirement pertaining to containment

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structural integrity to an ongoing rulemaking to incorporate ASME Section XI, IWE and IWL until its form and substance is finalized.

Based on the foregoing, the NRC has decided to retain its frequency for the inservice visual inspection.

Reporting Requirements

Only one comment was received on this issue. Dr. Z. Reytblatt noted that the proposed rule's reporting requirements consist only of a cover letter to the NRC and suggested this is intended to conceal information from the public. Dr. Reytblatt suggests that utilities should be required to submit all computer files related to testing to the NRC immediately after the tests have been completed to prevent their alteration or destruction.

It is not the intent of the NRC's reporting requirements to conceal information from the public; if tests fail, the information is required to be reported to the NRC, and the NRC will make such data available to the public. The NRC has decided to retain its reporting requirements as stated in the proposed rule.

Modifications to the Proposed Rule in Response to Public Comments

The NRC has decided to amend its proposed rule and its implementing documents to clarify language. The NRC has concluded that its regulatory analysis and its technical support document, NUREG-1493, do not require corrections to its technical or cost analyses or its findings. Modifications to all documents will be restricted to clarifications and enhancements to assist in communications with the reader, specifically in areas discussed in the public comments.

The proposed rule has been modified by changing "Acceptance criteria" to "Performance criteria" in Section II, Definitions, and various conforming text changes to reflect consistent use of that term. Other similar redundant terms in the proposed rule, e.g. goals, have been deleted to establish clear and concise language in the rule.

Specific changes to the draft regulatory guide, Section C, Regulatory Position, include (1) in paragraph number 2, the inclusion of the rationale for denying the "3 refueling cycle" change requested in the public comments; (2) the inclusion of a new paragraph number 4, taking exception to the NEI Industry Guideline, Section 10.2.3.3, which provides guidance that an as-found Type C test or an alternative test or analysis (emphasis added) shall be performed prior to any maintenance, repair, modification, or adjustment

activity if it could affect a valve's leak-tightness. "Alternate test or analysis" are not endorsed as appropriate substitutes for an as-found test, since the latter provides clear and objective evidence of performance of isolation components; and (3) limitation of the extension of test intervals for main steam and feedwater isolation valves in BWRs, and containment purge and vent valves in PWRs and BWRs beyond 30 months given their operating experience and/or safety significance.

Regulatory Guide; Issuance, Availability

The Nuclear Regulatory Commission has issued a new guide in its Regulatory Guide Series. This series has been developed to describe and make available to the public such information as methods acceptable to the NRC staff for implementing specific parts of the Commission's regulations, techniques used by the staff in evaluating specific problems or postulated accidents, and data needed by the staff in its review of applications for permits and licenses.

Regulatory Guide 1.163, "Performance-Based Containment Leakage-Test Program," endorses an industry standard which contains guidance on an acceptable performance-based leakage-test program, leakage rate test methods, procedures, and analyses that may be used to implement the final regulation published in this notice.

Comments and suggestions in connection with items for inclusion in guides currently being developed or improvements in all published guides are encouraged at any time. Written comments may be submitted to the Rules Review and Directives Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555. The NRC staff's response to public comments received on the draft version of this guide (DG-1037, issued in February 1995) are available for inspection or copying for a fee in the NRC Public Document Room, 2120 L Street NW., Washington, DC.

Regulatory guides are available for inspection at the Commission's Public Document Room, 2120 L Street NW., Washington, DC. Single copies of regulatory guides may be obtained free of charge by writing the Office of Administration, Attention: Distribution and Services Section, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; or by fax at (301) 415-2260. Issued guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be

obtained by writing NTIS, 5285 Port Royal Road, Springfield, VA 22161. Regulatory guides are not copyrighted, and Commission approval is not required to reproduce them.

Implementation

The proposed Option B to Appendix J will become effective 30 days after publication. At any time thereafter, a licensee or applicant may notify the NRC of its desire to perform containment leakage-rate testing according to Option B. Accompanying this notification, a licensee must submit proposed technical specifications changes which would eliminate those technical specifications which implement the current rule and propose a new technical specification referencing the NRC regulatory guide or, if the licensee desires, an alternative implementation guidance. Implementation must await NRC review and approval of the licensee's proposal. The NRC anticipates that a generic communication will be issued shortly which will provide the implementation procedure to all power reactor licensees.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment, and therefore an environmental impact statement is not required. There will be a marginal radiological environmental impact offsite, and the occupational exposure onsite is expected to decrease by about 0.8 person-rem per year of plant operation for plant personnel if licensees adopt the performance-based testing scheme provided in the revised regulation. Alternatives to issuing this revision of the regulation were considered. One alternative would also entail complex revisions to other NRC regulations and therefore the NRC has decided to pursue it separately in the future. A third alternative would add regulatory burden without a commensurate safety benefit and therefore was found not to be acceptable. The environmental assessment is available for inspection or copying for a fee in the NRC Public Document Room, 2120 L Street NW, (Lower Level), Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; phone (202) 634-3273; fax (202) 634-3343.

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Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Because the rule will relax existing information collection requirements by providing an option to the existing requirements, the public burden for this collection of information is expected to be reduced by approximately 400 hours per licensee per year. This reduction includes the time required for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding the estimated burden reduction or any aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a final regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection or copying for a fee in the NRC Public Document Room, 2120 L Street NW, (Lower Level), Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; phone (202) 634-3273; fax (202) 634-3343.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, (5 U.S.C. 605(b)), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Size standard adopted by the NRC (10 CFR 2.810).

Backfit Analysis

This final rule amends a current regulation by establishing alternative requirements which may be voluntarily adopted by licensees. Therefore, the final rule does not constitute a backfit

as defined in 10 CFR 50.109(a)(1). Therefore, a backfit analysis is not necessary.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 50.

60 FR 53505
Published 10/16/95
Effective 11/15/95

10 CFR Parts 50, 70, and 72

RIN 3150-AF27

Physical Security Plan Format Changes

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to eliminate the requirement for applicants for power reactor, Category I fuel cycle, and spent fuel storage licenses to submit physical security plans in two parts. This action is necessary to allow for a quicker and more efficient review of the physical security plans.

EFFECTIVE DATE: November 15, 1995.

FOR FURTHER INFORMATION CONTACT: Carrie Brown, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-8092.

SUPPLEMENTARY INFORMATION: Under current NRC regulations, applicants for power reactor, Category I fuel cycle, and spent fuel storage licenses must submit physical security plans in two parts. Applicants for power reactor, Category I fuel cycle, and spent fuel storage licenses are required to address, in Part 1 of their plans, how they will comply with the applicable regulations of 10 CFR Parts 11 and 73. They are required to list, in Part 2 of their plans, any test,

inspections, audits and any other means to be used to demonstrate compliance with the regulations.

The two-part format is restrictive and has no regulatory advantage. Existing licensees with physical security plans approved before the effective date of the final rule will not be required to adopt the new format. These licensees, however, may revise their plans on a voluntary basis, pursuant to the rules that permit licensees to make changes in security plans that do not decrease the effectiveness of the plans. This final rule will not change any of the substantive content currently required in the physical security plans.

The benefit of this rulemaking is the elimination of an unnecessary requirement and there are no expected adverse impacts. For those licensees who desire to revise their physical security plans, the staff has revised Regulatory Guide, 5.52, "Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other than Nuclear Power Plants)," for use as guidance. NRC encourages applicants or licensees to follow such guidance in order to allow for a quicker and more efficient review of the plans.

Summary of Public Comments

The comment period for the proposed rule published April 17, 1995 (60 FR 19170), closed on May 17, 1995. Two comments were received. The following comment summary and resolution address these comments.

Comment. This commenter complimented NRC for eliminating unnecessary requirements and commented on one statement, in the "Supplementary Information" section, that says licensees may " * * * revise their plans on a voluntary basis pursuant to the rules that permit licensees to make changes in security plans that do not decrease the effectiveness of the plan." The commenter discussed a Generic Letter that is being developed by the Office of Nuclear Reactor Regulation entitled, "Standardization of Security Program Reviews," and encouraged the issuance of the draft Generic Letter for comment as soon as possible.

Response. The Generic Letter was published in the **Federal Register** on June 14, 1995 (60 FR 31326), with a 30-day comment period.

Comment. This commenter noted that a similar requirement to submit physical security plans in two parts in 10 CFR 72.180 was not addressed and indicated that it should be included.

Response. NRC agrees with the

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comment and 10 CFR 72.180 has been amended.

Environmental Impact: Categorical Exclusion

NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501, *et seq.*). Existing requirements were approved by the Office of Management and Budget, approval numbers 3150-0009, 0011, and 0132.

Regulatory Analysis

The Commission has not prepared a regulatory analysis on this regulation because the amendment does not involve a question of policy, will have no impact on public health and safety, and will require no additional burden on current licensees.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. This final rule affects applicants for power reactor, Category I fuel cycle, and spent fuel storage licenses. Because these licensees are not classified as small entities, as defined by NRC's size standards (10 CFR 2.810), the Commission finds that this final rule does not have a significant economic impact on a substantial number of small entities.

Backfit Analysis

NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required, because this amendment does not involve any provisions that would impose backfits, as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material

control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, NRC is adopting the following amendments to 10 CFR Parts 50, 70, and 72.

60 FR 65456
Published 12/19/95
Effective 1/18/96

10 CFR Part 50

RIN 3150-AD57

Fracture Toughness Requirements for Light Water Reactor Pressure Vessels

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for light-water-cooled nuclear power plants to clarify several items related to the fracture toughness requirements for reactor pressure vessels (RPV). The amendments will clarify the pressurized thermal shock (PTS) requirements, make changes to the Fracture Toughness Requirements and the Reactor Vessel Material Surveillance Program Requirements, and provide new requirements for thermal annealing of a reactor pressure vessel.

EFFECTIVE DATE: January 18, 1996.

FOR FURTHER INFORMATION CONTACT:

Alfred Taboada, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-00001, telephone: (301) 415-6014.

SUPPLEMENTARY INFORMATION: On October 4, 1994 (59 FR 50513), the NRC published in the *Federal Register* a proposed amendment to clarify several items related to fracture toughness requirements for reactor pressure vessels (RPV) and to add a new section on thermal annealing of a reactor vessel to 10 CFR Part 50.

Background

Maintaining the structural integrity of the reactor pressure vessel of light-water-cooled reactors is a critical concern related to the safe operation of nuclear power plants. To assure the structural integrity of RPVs, NRC regulations and regulatory guides have been developed to provide analysis and measurements methods and procedures to establish that each RPV has adequate safety margin for continued operation. Structural integrity of a RPV is generally assured through a fracture mechanics evaluation, including measurement or estimation of the fracture toughness of the materials which compose the RPV. However, the fracture toughness of the RPV materials varies with time. As the plant operates, neutrons escaping from the reactor core impact the vessel bellline materials (e.g. the materials that

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surround the reactor core), causing embrittlement of those materials. The NRC's regulations and regulatory guides related to RPV integrity provide the criteria and methods needed to estimate the extent of the embrittlement, to evaluate the consequences of the embrittlement in terms of the structural integrity of the RPV, and to provide methods to mitigate the deleterious effects of the embrittlement.

The NRC has several regulations and regulatory guides that establish criteria and procedures for assuring the structural integrity of RPVs. With the addition of the thermal annealing requirements in this rule and several regulatory guides, the regulatory documents contribute to a comprehensive set of regulations and regulatory guidance pertaining to RPV integrity.

This final rule adds requirements for thermal annealing of the RPV as a method for mitigating the effects of neutron irradiation (10 CFR 50.66) and amends the following:

1. The Pressurized Thermal Shock (PTS) rule (10 CFR 50.61).
2. Appendix G of 10 CFR Part 50, "Fracture Toughness Requirements."
3. Appendix H of 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements."

Overview of the Final Rule

PTS Rule (10 CFR 50.61)

This amendment to the PTS rule makes three changes:

1. The rule incorporates in total, and therefore makes binding by rule, the method for determining the reference temperature, RT_{NDR} , including treatment of the unirradiated RT_{NDR} value, the margin term, and the explicit definition of "credible" surveillance data, which is currently described in Regulatory Guide 1.99, Revision 2.
2. The section is restructured to improve clarity, with the requirements section giving only the requirements for the value for the reference temperature for end of life fluence, RT_{PTS} . The method for calculating RT_{PTS} is moved to a new paragraph of the rule.
3. Thermal annealing is identified as a method for mitigating the effects of neutron irradiation, thereby reducing RT_{PTS} .

Thermal Annealing Rule (10 CFR 50.66)

The thermal annealing rule, 10 CFR 50.66, provides a consistent set of requirements for the use of thermal annealing to mitigate the effects of neutron irradiation and replaces the requirements for annealing in the current Appendix G of 10 CFR Part 50.

The final rule requires, prior to initiation of thermal annealing, submittal of a Thermal Annealing Report containing: (1) A Thermal Annealing Operating Plan, (2) a Requalification Inspection and Test Program, (3) a Fracture Toughness Recovery and Reembrittlement Trend Assurance Program, and (4) Identification of Unreviewed Safety Questions and Technical Specifications Changes. The report must be submitted at least 3 years before the date at which the limiting fracture toughness criteria in 50.61 and Appendix G to Part 50 would be exceeded. This 3-year period is specified to provide the NRC staff with sufficient time to review the thermal annealing program. Under § 50.66(a), the NRC will, within three years of submission of a licensee's Thermal Annealing Report, document its views on the plan, including whether thermal annealing constitutes an unreviewed safety question.

In order to provide for public participation in the regulatory process, Section 50.66(f)(1) requires that the NRC hold a public meeting a minimum of 30 days before the licensee starts to thermal anneal the reactor vessel. The Commission will notify and solicit comments from cognizant local and state governments, and will publish a notice in the *Federal Register* and in a forum, such as local newspapers, which is readily accessible to individuals in the vicinity of the site, in order to solicit comments from the public.

The thermal annealing operating plan must include an evaluation of the effects of temperature, and of mechanical and thermal stresses on the reactor and associated equipment such as containment, the biological shield, and attached piping, to demonstrate that the operability of the reactor will not be detrimentally affected. The bounding conditions of the temperatures and times used in this analysis define the proposed annealing conditions. If these conditions are exceeded during the vessel annealing, then the evaluation would no longer be valid, and the acceptability of the actual vessel annealing would have to be demonstrated as discussed below in the next paragraph.

Upon completion of the thermal annealing, the licensee must confirm in writing to the Director, Office of Nuclear Reactor Regulation (NRR), that the thermal annealing was performed in accordance with the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program. Within 15 days of the licensee's written confirmation that the thermal annealing was completed in accordance with the

Thermal Annealing Plan, and prior to restart, the NRC shall: (1) Briefly document whether the thermal annealing was performed in compliance with the licensee's Thermal Annealing Operating Plan and the Requalification Inspection and Test Program, with the documentation to be placed in the NRC public document room, and (2) hold a public meeting to: (1) permit the licensee to explain the results of the reactor vessel annealing to the NRC and the public, (2) allow the NRC to discuss its inspection of the reactor vessel annealing, and (3) provide an opportunity for the public to comment to the NRC on the thermal annealing. The licensee may restart its reactor after the meeting has been completed, unless the NRC orders otherwise. Within 45 days of the licensee's written confirmation that the thermal annealing was completed in accordance with the Thermal Annealing Operating plan and the Requalification Inspection and Test Program, the NRC staff shall complete full documentation of the NRC's inspection of the licensee's annealing process and place the documentation in the Public Document Room.

If the thermal annealing was completed but not performed in accordance with the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program, including the bounding conditions of the temperature and times as discussed above, the licensee must submit a summary of lack of compliance and a justification for subsequent operations. The licensee must also identify any changes to the facility which are attributable to the noncompliances which constitute unreviewed safety questions and any changes to the technical specifications which are required for operation as a result of the noncompliances. This identification does not relieve the licensee from complying with applicable requirements of the Commission regulations and the operating license, and if, as a result of the annealing operation, these requirements cannot be met, the licensee must obtain the appropriate exemption per 10 CFR 50.12. If unreviewed safety questions or changes to technical specifications are not identified as necessary for resumed operation, the licensee may restart after the NRC staff places a summary of its inspection of the thermal annealing in the Public Document Room, and the NRC holds a public meeting on the thermal annealing. On the other hand, if unreviewed safety questions or changes to technical specifications are identified as necessary for resumed operation, the

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licensee may restart only after the Director of NRR authorizes restart, the summary of the NRC staff inspection is placed in the public document room, and a public meeting on the thermal annealing is held.

The final Thermal Annealing Rule also sets forth the requirements that a licensee must follow if the thermal annealing was terminated prior to completion. In general, the process and requirements for partial annealing are analogous to the situations where the thermal annealing was completed; *viz.*, where the partial annealing was otherwise performed in compliance with the Thermal Annealing Operating Plan and relevant portions of the Requalification Inspection and Test Program, the licensee submits written confirmation of such compliance and may restart following, *inter alia*, holding of a public meeting on the annealing. By contrast, where the partial annealing was not performed in accordance with the Thermal Annealing Operating Plan and relevant portions of the Requalification Inspection and Test Program, the licensee is required to submit a summary of lack of compliance and a justification for subsequent operations, and identify any changes to the facility which are attributable to the noncompliances which constitute unreviewed safety questions and changes to the technical specifications which are required for operation as a result of the noncompliances with the Thermal Annealing Operating Plan and relevant portions of the Requalification Inspection and Test Program. If Unreviewed Safety Questions and/or changes to technical specifications are identified as necessary for resumed operation, the licensee may restart only after the Director of NRR authorizes restart and the public meeting on the thermal annealing is held.

Every licensee that either completes a thermal annealing or terminates an annealing but elects to take full or partial credit for the annealing shall provide a Thermal Annealing Results Report detailing: (1) The time and temperature profile of the actual thermal anneal, (2) the post-anneal RT_{NDT} and Charpy upper shelf energy values of the reactor material to be used in subsequent operations, (3) the projected post-anneal reembrittlement trends for both RT_{NDT} and Charpy upper-shelf energy, and (4) the projected values of RT_{PTS} and Charpy upper-shelf energy at the end of the proposed period of operation addressed in the application. The report must be submitted within three months of completing the thermal anneal, unless an extension is authorized by the Director, NRR.

Two items of particular importance to the overall annealing are the recovery of fracture toughness and the degree of reembrittlement of the RPV beltline materials. This final rule provides alternative methods for determining these values, ranging from assessments using plant-specific materials to an assessment using a generic computation.

Two methods provided for evaluating annealing recovery are experimental methods to determine plant-specific annealing recovery, and a third method is a generic computational method. Experimental methods and the computational method are also provided for estimating recovery of RT_{NDT} and Charpy upper-shelf energy of the beltline materials. The experimental methods for estimating recovery of RT_{NDT} and the Charpy upper-shelf energy utilize either surveillance program specimens or material removed from the vessel beltline. The experimental methods provide a plant-specific estimate of recovery, rather than the generic value evaluated from the computational method. This final rule requires that surveillance specimens must be used to develop plant-specific recovery data, if such specimens are available. This final rule does not require the removal of material from the RPV beltline to permit plant-specific evaluation of recovery.

As described previously, the computational method requires appropriate justification.

Post anneal reembrittlement trends of both the RT_{NDT} and the Charpy upper shelf energy must be estimated and monitored using a surveillance program described in the Thermal Annealing Report.

The reactor pressure vessel is perhaps the most important single component in the reactor coolant system. As such, ensuring its integrity is a fundamental element of plant safety. Thermal annealing is a positive action that could be taken to reduce the level of embrittlement in the pressure vessel beltline and, thereby, improve the ability of a pressure vessel to withstand accident loadings. While thermal annealing is a positive action, there are numerous complex technical questions regarding its application in the U.S. that are unanswered.

Thermal annealing of a commercial reactor pressure vessel has never been accomplished in the United States. Thermal annealing has been successfully employed in Eastern Europe and Russia on Russian-designed pressure vessels. However, there are significant differences between the U.S. and Russian designs in terms of the

geometry of the pressure vessels, the attached piping, and the surrounding structures. The staff has observed one of these annealing operations. While informative, the East European and Russian experience does not provide answers to all of the potential questions related to annealing of U.S. designed pressure vessels.

Research analyses performed previously indicated the potential for plastic deformation of the main coolant piping for a typical U.S. plant design and anticipated annealing conditions. There are also questions regarding how thermal growth of the pressure vessel is treated, and the adequacy of the thermal and stress analyses used to predict response of the overall system under thermal annealing conditions. Additionally, there may be questions in other areas such as temperature limits for the concrete structures, and potential radiological hazards associated with removing and storing the reactor internals during the annealing process, and fire hazards associated with heating the vessel.

Recognition of the numerous complex technical questions related to thermal annealing, and of the potential benefits for operating nuclear power plants, has resulted in a cooperative effort, funded by the U.S. Department of Energy and the industry, to perform Annealing Demonstration Projects. Projects are planned to demonstrate two different annealing processes, evaluating heater designs and vessel designs. It is anticipated that the annealing demonstration projects will answer many of the generic questions regarding thermal annealing of U.S. pressure vessel and piping designs.

The thermal annealing report, required by the thermal annealing rule, is designed to facilitate a detailed review by the licensee of plant-specific questions and considerations in performing a thermal annealing. The proposed rule specifically discusses the potential for unreviewed safety questions and technical specification changes that may result from or be related to thermal annealing of the reactor pressure vessel. With completion of the demonstration projects and as the staff and industry gain experience with thermal annealing, many of the issues related to annealing will be better understood and related questions will be answered. However, until this experience is realized, the staff will critically review licensee determinations regarding unreviewed safety questions and the need for technical specification changes associated with each proposed thermal annealing.

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The thermal annealing rule has been structured to provide time for the staff to thoroughly review the licensee's annealing plan and determination regarding unreviewed safety questions and the need for technical specification changes. If the staff identifies an unreviewed safety question or the need for a technical specification change, the licensee would be so notified and the existing NRC regulatory practices would be invoked to address the issues.

Appendix G of 10 CFR Part 50

Appendix G of 10 CFR Part 50 specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary of light-water-cooled nuclear power reactors. These requirements provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests. The amendments to Appendix G are principally of a clarifying or a restructuring nature. Requirements for "volumetric inspection" and "additional evidence of fracture toughness" have been removed because they were unnecessary, given the inspection and performance demonstration programs currently required under 10 CFR 50.55a. The "additional evidence of fracture toughness" requirement in Section V.C.2 is incorporated in the "equivalent margins" analysis in Section IV.A.1 as a provisional method for developing fracture toughness data needed for that analysis.

The pressure-temperature and minimum permissible temperature requirements in Section IV have been restructured. The principal feature is the addition of a table which summarizes the pressure-temperature limit requirements and minimum temperature requirements as a function of the plant operating condition, the vessel pressure, whether fuel is in the vessel, and whether the core is critical. In addition, Section IV has been reworded to clarify the minimum permissible temperature requirement by indicating the criteria for use in determining the location in the component or material which must satisfy the minimum temperature requirement. This minimum temperature is defined in Section IV as the metal temperature of the controlling material in the region which has the least favorable combination of stress and temperature for the appropriate plant condition. An explicit statement has been added to require that pressure and leak tests of the reactor pressure vessel

required by Section XI of the American Society of Mechanical Engineers Boiler & Pressure Vessel (B&PV) Code (ASME Code) must be completed before the core is critical.

The requirement that all pressure and leak tests of the RPV required by Section XI of the ASME Code must be completed before the core is critical is intended to prohibit the use of nuclear heat, i.e., core criticality, in the conduct of ASME, Section XI pressure and leak tests. The use of nuclear heat before the completion of such tests is not consistent with basic defense-in-depth nuclear safety principle for several reasons, including the hindrance of finding leaks with the vessel at such a high temperature and the potential for exacerbating the consequences of a vessel rupture (in the extremely unlikely event that it should occur) by having the core critical. The explicit prohibition of nuclear heat in these cases was discussed in a letter to Messrs. Reynolds and Stenger of the Nuclear Utility Backfitting and Reform Group from James M. Taylor, Executive Director of Operations, dated February 2, 1990.

The current requirements in 10 CFR Part 50, Appendix G, Section V. D. with respect to reactor vessel thermal annealing are being replaced by a sentence which references the new Thermal Annealing rule, 10 CFR 50.66.

Appendix H of 10 CFR Part 50

Appendix H of 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements" provides the rules for monitoring the changes in the fracture toughness properties of the RPV beltline materials due to irradiation embrittlement using a surveillance program. Appendix H references American Society for Testing and Materials (ASTM) standard E 185 ("Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels") for many of the detailed requirements of surveillance programs, and permits the use of integrated surveillance programs, wherein surveillance program capsules for one reactor are irradiated in another reactor.

Integrated surveillance programs are permitted under Section II.C of Appendix H of 10 CFR Part 50. One provision of this section is that "the amount of testing may be reduced if the initial results agree with predictions." This provision was deleted, although previous authorizations granted by the Director, Office of Nuclear Reactor Regulation, continue in effect.

A second change to Appendix H restructures Section II.C to clarify the

requirements for integrated surveillance programs.

The other principal change to Appendix H clarifies the version of ASTM Standard E 185 that applies to the various portions of the surveillance programs. Appendix H recognizes the need to separate surveillance programs into two essential parts, specifically the design of the program and the subsequent testing and reporting of results from the surveillance capsules. Because the design of the surveillance program cannot be changed once the program is in place, the requirements for design of the surveillance program are static for each plant. However, the testing and reporting requirements are updated along with technical improvements made to ASTM standard E 185.

Request for Public Comments

At the request of the Commission, the proposed rule contained a request for public comments on the following specific issues related to the proposed regulation on thermal annealing:

1. The technical adequacy of the staff's guidance;
2. The sufficiency of the guidance and criteria to support a certification that if satisfied, a plant with an annealed vessel can safely resume operation;
3. Whether health and safety concerns are best served by approval of the thermal annealing plan or of readiness for restart;
4. The preferred regulatory process (including opportunities for public participation) and the commenter's basis for recommending a particular process; and
5. Whether there are health and safety issues concerning thermal annealing that cannot be addressed generically and would warrant plant-specific consideration.

The supplementary information section of the proposed rule also discussed the issue of opportunity for public participation in regulating thermal annealing of pressure vessels.

The response to the request for public comments on these issues, along with other items, are summarized below.

Summary of Comments

The following includes a summary of the comments received on the proposed rule, on the five issues identified by the Commission, and on the options for public participation in thermal annealing.

Comments were received from nine separate sources. These sources consist of five utilities, the Nuclear Energy Institute (NEI), the Nuclear Utility Backfitting and Reform Group

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(NUBARG) represented by the firm Winston & Strawn, one public citizens group (Ohio Citizens for Responsible Energy (OCRE)), and one nuclear steam system supplier (NSSS).

NEI provided detailed comments on 10 CFR 50.61, 10 CFR 50.66, Appendix G to 10 CFR Part 50, and Appendix H to 10 CFR Part 50, responded to the request for comments on the five issues related to thermal annealing and included detailed comments on the opportunities for public participation. The five utilities and the NSSS endorsed the NEI comments. Three of the five utilities provided additional comments on 10 CFR 50.61; one of the five utilities provided additional comments on 10 CFR Part 50, Appendix G; two of the utilities provided additional comments on 10 CFR Part 50, Appendix H; and one of the five utilities disagreed with the NEI position on the opportunity for public participation and submitted a separate comment. OCRE provided comments on the opportunity for public participation. NUBARG provided comments on the backfitting aspects of the proposed rule and the staff's backfit justification.

NEI and one of the utilities included comments on the Draft Regulatory Guide DG-1027, "Format and Content of Application for Approval for Thermal Annealing of Reactor Pressure Vessels," that was discussed in the proposed rule. These comments on Draft Regulatory Guide DG-1027 are being reviewed by the NRC staff and will be addressed separately in the resolution of comments on the regulatory guide.

The NRC reviewed the comments received on the proposed rule, the comments on the five questions related to thermal annealing and the issue of opportunities for public participation. The resolution of these comments is presented below.

PTS Rule (10 CFR 50.61)

Sixteen specific comments in the submittals from NEI and three utilities addressed 10 CFR 50.61. A general comment argued that both the existing 10 CFR 50.61 and the proposed modifications contained an excessive amount of prescriptive technical detail that limits licensee compliance flexibility. The commenters proposed that these prescriptive technical details be removed from the rule and placed in a regulatory guide. These commenters suggested that the rule not be issued until it has been written to contain only those requirements essential to regulate reactor pressure vessel embrittlement. A number of comments suggested changes that were clarifications to the proposed rule, including proposals to clarify the

procedure for calculating the reference temperatures in the preservice condition, RT_{NDT} , and, at end of reactor life, RT_{PTS} . One comment noted that the proposed rule omitted part of the procedure in Regulatory Guide 1.99, presently being applied by the NRC, that permits adjustments for differences in chemistry between surveillance material and the vessel material when using credible surveillance data to calculate a best fit chemistry factor for transition temperature shifts due to irradiation. Several comments proposed changes in the criteria for establishing whether surveillance material data is credible that would result in a less restrictive basis for using surveillance data in determining the transition temperature shift. The comments argued that the proposed rule is ambiguous with respect to the use of information from other sources that contain limiting material for a specific plant and that the NRC must have the flexibility to approve use of such information on a case-by-case basis. Several comments proposed limiting the basis for making changes of RT_{PTS} subject to the approval of the Director, NRR.

The NRC recognizes that 10 CFR 50.61 contains an unusual amount of prescriptive material and that the comments proposing simplification have merit. Some changes to the rule have been made to provide flexibility, where appropriate. The NRC staff is evaluating subsequent changes that would be more performance based. However, the NRC staff believes that this rule, as written, is needed to ensure that plants apply the appropriate method for determining RT_{PTS} and that the appropriate reference to the thermal annealing rule be applied for the pressurized thermal shock situation.

A number of clarifications were made to the rule. The paragraphs dealing with the determination of RT_{PTS} were modified to make clear that RT_{PTS} is a unique, end of life, case of RT_{NDT} and to clarify the procedure for determining these values. As suggested, the adjustment procedure was added to the rule to permit accounting for differences in chemistry between surveillance materials and reactor vessel materials when calculating chemistry factors. With respect to the plant specific material surveillance data that is permitted to be used in a surveillance program, the rule was modified to make clear that such data includes results from other plant's surveillance programs and test reactors. Several clarifications were made to the criteria for determining credible material. The NRC determined that the requirements for approval by the Director, NRR, for

changes in RT_{PTS} are appropriate and should not be modified.

Thermal Annealing Rule (10 CFR 50.66)

Twelve individual comments were received on the proposed Thermal Annealing Rule, 10 CFR 50.66. These comments included a number of suggestions for clarification of details of the proposed rule. Three of the comments addressed the requirements that, after the annealing operation, the reembrittlement rate of the reactor vessel due to neutron irradiation must be estimated and must be monitored using a surveillance program which conforms to Appendix H of 10 CFR 50, "Reactor Vessel Materials Surveillance Program." The comments are summarized as follows:

(1) The supplementary information section for the proposed rule is silent on what is acceptable if limiting material is not available. The rule should provide appropriate requirements on the method for monitoring reembrittlement after annealing for those plants that do not have limiting material for their surveillance program and the monitoring plans should be consistent with the preannealing surveillance program approved by the NRC staff;

(2) Appendix H does not define an acceptable post-anneal surveillance program, the reference to Appendix H should be deleted, and the post-anneal surveillance program should be defined in the annealing plan that is approved by the staff; and

(3) The term reembrittlement rate is unclear as to the period of time to be used for its determination, and a wording change is proposed for the requirement that would relate change in toughness to fluence accumulated after the anneal.

Three of the comments addressed the requirements in the proposed rule that the Thermal Annealing Operation Plan include time-temperature profiles which represent the annealing conditions that may not be exceeded during the annealing operation and are to be used for determining the amount of recovery of the fracture toughness of the material due to annealing. The comments suggested that, instead of a single time-temperature profile, bounding time and temperature conditions be established for the maximum values that would be used for thermal and stress analysis and to verify the re-qualification inspection and test program, and the minimum values that would be used to establish the amount of recovery of fracture toughness and for reembrittlement rate estimates. The bounding values would be based upon the estimated uncertainties in the times and

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temperatures and the actual annealing conditions should fall within these bounds.

Two comments addressed the section on Certification of Annealing Effectiveness. One comment suggested deleting the requirement in the proposed rule for certification of the annealing effectiveness and instead adding a provision in the Thermal Annealing Operating Plan that approval prior to subsequent power operation be required only if the anneal was not performed in accordance with the approved plan. The comment also suggested that, if the licensee terminates the annealing before achieving the specified time but otherwise maintains the annealing envelope such that no concern exists for stress or thermal damage, no additional constraints be imposed on subsequent operations and no credit be given for annealing. The second comment suggested that (1) the staff's review of the annealing report (certification report) need not be completed prior to reinitiating power operation if the anneal was performed in accordance with the approved Thermal Annealing Operating Plan, (2) reporting and quantification of the actual recovery results need not be reported unless the vessel was at or above the PTS screening criteria when annealing was started, and (3) the Thermal Annealing Operating Plan should specify the minimum content and a schedule for reporting the annealing results. The commenter provided a proposed list of criteria, content, and schedule for reporting the annealing results.

One comment stated that no guidance was provided in the proposed rule on what constitutes components "affected" by the annealing operation that are required to be reported in the Thermal Annealing Operating Plan. The comment suggested alternative wording that components to be reported should be structures and components that are expected to experience significant temperature gradient or stress variations during the thermal annealing operation. One comment suggested qualifying the provision in the proposed rule that the effects of localized high temperatures must be evaluated for changes in thermal and mechanical properties of the reactor vessel insulation for those cases where such changes may be negligible at annealing conditions. One comment suggested that the use of applicable material data, such as data from integrated surveillance programs, be an optional part of the computational methods for determining fracture toughness recovery.

The NRC reviewed the comments received on the proposed rule in detail. After consideration, the NRC reached the conclusion that most of the comments are not inconsistent with the intent of the proposed rule and in some cases reflect a need for clarification of the rule. In these cases, alternative wording that clarified the intent of the rule was substituted in the text. With respect to the comments on the requirement that reembrittlement rate after annealing must be monitored using a surveillance program, the NRC is aware that some plants do not have limiting materials for their existing preannealing surveillance programs. For these situations the staff has approved alternative surveillance plans on a case-by-case basis. Clearly, these plants will not have limiting material for surveillance programs for use in determining reembrittlement rates after annealing.

The NRC recognizes that Appendix H of 10 CFR Part 50, which is referenced in this rule, does not specifically address the surveillance of an annealed reactor vessel. However, the requirements of Appendix H to 10 CFR Part 50 apply to all reactors including the specific case of an annealed reactor vessel. To clarify the surveillance requirements of an annealed plant, the final rule has been modified to include, as suggested, that the post-anneal reembrittlement is to be monitored using a surveillance program defined in the Thermal Annealing Report and that the surveillance program must conform to the intent of Appendix H to 10 CFR Part 50.

The term reembrittlement "rate" in the proposed rule was intended to mean the projected amount of reembrittlement over a specific fluence period. It is recognized that reembrittlement is not a straight line function of fluence. Determination of reembrittlement rate is discussed in more detail in Draft Regulatory Guide 1.162, "Format and Content of Report for Thermal Annealing of Reactor Pressure Vessels." In Regulatory Guide 1.162, the approved method for estimating the reembrittlement rate, the lateral shift method, results in the same embrittlement trend as that used for the pre-anneal operating period. To avoid confusion the term "rate" has been changed to "trend" in the final rule and the regulatory guide.

The NRC agrees with the comments that the time and temperature profile required in the annealing operating plan should be bounding values. In this regard, Regulatory Guide DG-1027 calls for the thermal annealing operating plan to include identification of the

limitations and permitted variations in temperature, time, heatup and cooldown rate. For clarification, the final rule has been modified to use the terms "bounding conditions for times and temperatures and heatup and cooldown schedules" to describe conditions that may not be exceeded during the annealing operation, and the lower limit time and temperature of the actual anneal is used for determining the projected recovery of fracture toughness by annealing.

The NRC considers that the intent of paragraphs (c), Completion or Termination of Thermal Annealing, and (d), Thermal Annealing Results Report, of the final rule to be consistent with the two comments on that subject. The final rule does not require that the NRC approve restart following the annealing operation if the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program was complied with. The NRC accepts the suggestion that the rule should be more specific on the items the licensee should include in the report and has included the list in the final rule.

Finally, the NRC agrees with the suggestion to make clear that a report is not required if:

- (1) The licensee terminates the anneal prior to completion;
- (2) The partial anneal was otherwise in accordance with the Thermal Annealing Plan;
- (3) The licensee does not elect to take credit for any recovery. A statement was added to the Final Rule to cover the early termination situation.

The NRC has accepted the suggested clarifications of what constitutes an "affected" component and the qualification on the requirement to evaluate changes in properties on reactor vessel insulation if these are negligible. The NRC considers it unnecessary to include a reference in the rule to data from integrated surveillance programs as an optional part of the computational methods to determine fracture toughness recovery. Generic computational methods for this purpose are provided in the Regulatory Guide 1.162. However, the final rule does not prohibit use of alternative methods if adequate justification is provided.

Appendix G to 10 CFR Part 50

Two comments were received on the Appendix G to 10 CFR Part 50 of the proposed rule. The NEI comment, which was endorsed by five utilities and one NSSS organization, included a table with six items on Appendix G. The other comment on Appendix G was received from one of the five utilities.

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Two of the comments identified typographical errors and suggested a change in organization to improve clarity. One of the comments suggested revising the rule to change the definition of reference temperature, RT_{NDT} , for cases where plants do not have data to comply with code procedures for determining RT_{NDT} . One comment suggested a change in the title of Table 1, "Pressure and Temperature Requirements," by adding to the title "For the Reactor Pressure Vessel" to make clear that this table does not apply to other components in the reactor coolant pressure system and proposed adding a footnote to the table for the same purpose. One comment identified an error in the minimum temperature requirements for the hydrostatic and leak testing of the pressure vessel without fuel when the vessel pressure is equal or below 20 percent of the vessel design pressure. One of the comments suggested that two of the entries in the table were new requirements when the table was intended to provide clarification. The utility's comment disagreed with the proposed rule change to prohibit the use of nuclear heat for the performance of vessel leak and hydrostatic testing. The utility contended that using nuclear heat, by providing a significant temperature margin above the pressure and temperature limit curves, greatly reduces the probability of brittle fracture and should be allowed.

The NRC corrected the typographical errors and corrected the minimum temperature requirement for the hydrostatic and leak testing of the pressure vessel at low vessel pressures and without fuel. The title to Table 1 was changed, as suggested, for clarification.

The NRC does not agree with the proposal to change the definition of RT_{NDT} . The situation described in the comment, when data is not available to comply with code procedures, is presently handled on a case-by-case basis in accordance with MEB Branch position, MEB 5-2. The NRC staff does not agree with the comment that the two requirements cited are new requirements. Item 2.2.c. and Item 2.2.d of Table 1 are in the existing ASME code requirement and in Paragraph IV.A.3. in the rule. The NRC also does not agree with the utility's comment that using nuclear heat greatly reduces the probability of brittle fracture. The reasons for this are set forth in the February 2, 1990, letter to Messrs. Reynolds and Stenger of NUBARG from James M. Taylor, Executive Director for Operations.

Appendix H to 10 CFR Part 50

Three comments were received on Appendix H to 10 CFR 50. The comment from NEI was endorsed by the five utilities and the NSSS. Two of the five utilities submitted additional comments. NEI and one utility commented that the proposed change to Paragraph III.B.1, which establishes the applicable edition of ASTM standard E 185 for a reactor surveillance program, constituted a backfit that would require a substantial design change in the surveillance program for those plants fabricated to a code edition prior to 1973. The other two commenters suggested new changes to Appendix H to 10 CFR Part 50. One of the commenters noted that an existing provision in Appendix H to 10 CFR Part 50, not part of the proposed rule change, dealing with requirements for attaching capsule holders to the vessel wall is a reiteration of a requirement in the ASME Code and should be removed. The other commenter suggested a new change to Appendix H to 10 CFR Part 50 to add a statement to the criteria for approval of an integrated surveillance program that would permit the use of surveillance specimens for extension of license purposes. The commenter also suggested that there is an apparent conflict between Paragraph III.C.2. and Paragraph III.C.3. that address requirements for an integrated surveillance.

The provision in the proposed rule was changed and reference to ASTM E 185 73 was deleted to make clear that the surveillance programs must be designed to the edition of ASTM 185 that is current on the issue date of the ASME Code to which the reactor vessel was purchased or to a later edition through 1982. The Commission agrees with the industry comments that imposing the ASTM E 185 1973 edition is impractical because vessels purchased prior to 1973 could not necessarily comply with all of the surveillance requirements in the 1973 edition of the ASTM standard. The NRC staff believes that the provision in the present rule on requirements for attaching capsule holders to the reactor vessel wall is required for clarity and should not be deleted. The comments related to the requirements for an integrated surveillance program were not persuasive to the NRC staff. The existing provisions of the rule do not preclude the application of the integrated surveillance program for extension of license purposes. The two paragraphs purported to be in conflict address separate items; one addresses the number of materials to be irradiated,

specimen types, and number of specimens per reactor; the other addresses amount of testing.

Request for Comments on Issues Related to Thermal Annealing

Comments were received from NEI on the five issues on thermal annealing that were included in the proposed rule at the Commission's direction. In addition, OCRE and one utility, Pacific Gas and Electric, submitted comments on Issue 4, concerning the preferred regulatory process (including opportunity for public participation). Public Comments on the five issues are summarized below:

Issue 1: The technical adequacy of the NRC staff's guidance.

Comment: The detailed comments submitted on 10 CFR 50.66 are summarized in the Summary of Comments section on the Thermal Annealing Rule. In addition, NEI suggested that draft Regulatory Guide, DG-1027, be revised to include acceptance criteria where an action is required, but the acceptance criteria was not defined. NEI further commented that the re-embrittlement rate equation (DG-1027, Equation 1) appeared to be very conservative and would result in a post-anneal operating life that is less than industry believes justified.

Response: The NRC is concurrently revising the noted draft regulatory guide and will address this comment in the resolution of comments for the guide.

Issue 2: The sufficiency of the guidance and criteria to support a certification that if satisfied, a plant with an annealed vessel can safely resume operation.

Comment: NEI noted that "The reactor pressure vessel thermal annealing rule and guide address appropriate issues to assure public health and safety and that the annealed reactor pressure vessel may be safely operated. The prior NRC staff approval of the reactor vessel annealing plan assures a clear process and criteria to restart following the vessel anneal. The licensee needs only to attest to compliance with the approved plan prior to resuming operations. The resumption of operations should not be needlessly delayed while a report documenting performance of the vessel anneal and recovery of the embrittled material properties is confirmed, because the vessel anneal will only improve the material properties. The final report should be submitted on a schedule that considers when the vessel would have exceeded the RT_{PTS} or uppershell energy (USE) screening criteria without an anneal. The material property recovery will document prior

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to the time when the vessel would have exceeded the screening criteria, thereby assuring that the vessel is safe to operate at restart and for the duration justified by the material embrittlement recovery."

Response: NRC agrees with the NEI comment, except NRC believes it is necessary for the licensee to submit the final report within three months of completing or terminating the anneal, unless an extension is authorized by the Director, Office of Nuclear Reactor Regulation.

Issue 3: Whether health and safety concerns are best served by approval of the thermal annealing plan or of readiness for restart.

Comment: NEI noted that "The performance of a reactor pressure vessel anneal in accordance with an approved annealing plan improves the public health and safety by reducing the probability of core melt frequency. This improvement occurs because of the increase in reactor vessel material ductility. The amount of recovery achieved by a thermal anneal will be documented prior to the original date when the reactor vessel would have exceeded the PTS or USE screening limit. Therefore, a demonstration for "restart readiness" is an extra burden that will not provide any further improvement of the public health and safety."

Response: The NRC's determination as to the procedures for NRC review of the Thermal Annealing Operation Plan, Requalification Inspection and Test Program and justification for restart discussed below in further detail in the Opportunities for Public Participation section.

Issue 4: The preferred regulatory process (including opportunities for public participation) and the commenter's basis for recommending a particular process.

Comment: NEI noted that "The industry recommends that a hearing opportunity be provided, but that it be a non-adjudicatory, 10 CFR Part 2, Subpart L type hearing on the docketed record. The essential features of the hearing process proposed are as follows. The NRC would at time of receiving the licensee proposed annealing plan issue a **Federal Register** announcement that staff is performing the review per 10 CFR 50.66. A Subpart L hearing could be held, if requested by an intervenor, after the NRC staff has issued a safety evaluation report on the licensee annealing plan, but prior to commencement of the reactor vessel thermal annealing unless the NRC staff makes a "no significant hazards determination." Enclosure 4 provides

additional details that support this industry position." Additional detailed comments by NEI and the comments on this subject by OCRE are discussed under the Opportunities for Public Participation heading.

Response: The rule provides for public participation in the regulatory process by incorporating a public meeting on the Licensee's Thermal Annealing Report a minimum of 30 days before the start of thermal annealing, and a public meeting after the licensee completes the anneal but before the reactor is restarted. The opportunity for public hearings in thermal annealing should be limited to those cases where there is an unreviewed safety question or a change to the Technical Specifications or where the licensee did not comply with the Thermal Annealing Operating Plan and Requalification Inspection and Test Program. Expanded discussion on this issue is provided below under the Opportunities for Public Participation heading.

Issue 5: Whether there are health and safety issues concerning thermal annealing that cannot be addressed generically and would warrant plant-specific consideration.

Comment: NEI noted that "Thermal annealing to reduce material irradiation embrittlement is a well understood metallurgical phenomenon. The supporting thermal and stress analysis used to demonstrate that the vessel is not damaged during the anneal are standard technologies used at nuclear plants. Because thermal annealing uses well understood technology, public health and safety is reasonably assured."

Response: The NRC agrees with this comment.

Opportunities for Public Participation

The Supplementary Information section of the proposed rule discussed the four options the Commission considered for structuring the regulatory process related to public participation in the NRC's review and approval of a licensee's proposal for thermal annealing of a reactor vessel. The proposed rule, at the Commission's direction, requested comments on the preferred regulatory process (including opportunities for public participation). The four options included:

(1) No hearings under the rule as proposed;

(2) Discretionary opportunity for hearing under rule as proposed in which situation the Commission would decide on a case-by-case basis to determine whether a hearing should be held;

(3) Required opportunity for hearing under rule as proposed, but work could commence if the NRC were to make a "no significant hazard determination" on the proposed thermal annealing; and

(4) Modify the proposed rule to require suspension of license prior and during the thermal annealing at which time no hearing would be afforded and the license would only be reinstated if the licensee demonstrates that it has addressed the reactor embrittlement such that it is acceptable to operate the plant.

Three comments were submitted on the subject. OCRE and NEI addressed all of the alternatives in detail and they, as well as one utility, identified and discussed individual preferred alternatives.

NEI commented that each of the four alternatives has a sufficiently serious flaw to prevent adoption. With respect to the no hearing alternative, NEI agrees that annealing is presently subject to approval by the Director of NRR in accordance with Part 50 Appendix G rather than being the subject of a license amendment as an unreviewed safety question under § 50.59. However, NEI believes that annealing is an important process from a regulatory standpoint and that public participation, in the form of informal hearings, is appropriate. NEI objected to a discretionary opportunity for a hearing because it provides significant uncertainty in the process for licensees and members of the public. NEI's objection to requiring a hearing, as discussed in staff Option 3, is that it would allow those who object to the resumption of operation, on other than technical grounds, to use hearings to delay restart. Option 4 is objectionable to NEI because it does not provide the licensee with any stability or predictability since the licensee would be required to demonstrate compliance after the annealing was performed, and does not provide the public with any opportunity to express its views.

NEI further commented that a license amendment is not necessary to approve a thermal annealing plan because annealing will not change the reactor vessel or other components in a manner inconsistent with the facility technical specifications nor will it require changes in the FSAR, and further, that a licensee is not required to modify its procedures to address or accommodate the annealing process. NEI noted that, while there is an incentive for the licensee to obtain credit for its improved P/T curves, and could seek a licensee amendment to do so, the licensee's existing P/T curves could remain in force.

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Despite the conclusion that a license amendment is not necessary for thermal annealing, NEI recommended that a hearing opportunity be provided, but that it be a non-adjudicatory, Subpart L type hearing on the record. NEI gave the following advantages for this approach: (1) The NRC would be provided with a clear understanding of the licensee's annealing process, and the NRC's hearing process; (2) a Subpart L hearing is held on the written record and typically does not include the discovery or live testimony associated with adjudicatory hearings, but allows the public to participate in a meaningful way without consuming the vast NRC, licensee, and public resources required for an adjudicatory hearing; and (3) it would provide predictability and stability by ensuring that all issues which could be subject to a hearing are addressed prior to restart. Any inspection or test performed in order to restart would be for the purpose of confirming compliance with the rule.

OCRE supported the proposed rule provided that the public hearing rights were preserved with regard to reactor pressure vessel annealing. It is OCRE's position on the request for public comment that, based on the Sholly decision, the NRC must offer the opportunity for a formal adjudicatory hearing on the application for annealing and on the licensee's justification for subsequent operation where the licensee cannot certify that the thermal annealing was performed in accordance with the approved application. OCRE commented that approval by the Director of NRR of the application for annealing and restart of the reactor, if the licensee cannot certify that annealing was performed in accordance with the approved application, will give the licensee the authority to operate in ways in which they otherwise could not, and is thus, a de facto license amendment. OCRE fully supported Option 3 which requires opportunity for hearing under the rule as proposed. OCRE suggested that the adequacy of the thermal annealing plan, as well as the vessel's ability to perform its safety function after annealing, could be raised in the hearing on the thermal annealing plan and that the licensee's implementation of the thermal annealing plan could not commence until any hearing is concluded or unless the NRC makes a "no significant hazards determination" with respect to thermal annealing.

With respect to Option 1, OCRE concluded that the informal hearings or public meetings proposed by the Commission for the initial thermal annealing are not a substitute for

adjudicatory hearings required by the Atomic Energy Act (AEA) and do not give the interveners the same rights as they would have in a Section 189a hearing. OCRE found Option 2 preferable to having no hearing. However, OCRE contended that this option is flawed by the assumption that "Section 189a of the AEA does not afford an interested member of the public a right to request a hearing." They contend that approval by the Director, NRR to anneal the reactor pressure vessel or to restart after annealing does constitute a de facto operating licensing amendment for which the opportunity for a hearing is required. OCRE found Options 1 and 4 unacceptable in that they do not provide the opportunity for a formal adjudicatory hearing.

The comment from the utility suggested that Option 1 is the appropriate approach as long as the annealing process to be implemented is approved in advance by the NRC staff and the utility certifies that they have complied with the approved annealing process during the annealing operation, as provided for in the proposed rule. The utility further commented that if Technical Specifications changes or amendments to the operating license are required in order to perform the annealing then the opportunity for hearings would be required due to the normal license amendment process and if the final safety analysis report (FSAR) were required to be updated to reflect the thermal annealing process, the provisions of 10 CFR 50.59 would apply. The utility suggested that if those changes did not constitute an "unreviewed safety question," no amendment would be needed and the license amendment process should not be invoked and that if a member of the public is concerned about a licensee's compliance with the NRC approved thermal annealing plan, those concerns could be addressed pursuant to the 10 CFR 2.206 petition process. The utility commented that, under its proposal, existing regulatory provisions for public participation would apply as appropriate and no new prescriptive requirements would be necessary.

The Commission has considered the public comments and has modified the proposed rule as follows. A licensee that seeks to utilize thermal annealing to mitigate the effects of neutron irradiation of the nuclear reactor vessel must, at least three years prior to the date at which the limiting fracture toughness criteria in § 50.61 or Appendix G to Part 50 would be exceeded, submit a Thermal Annealing Report to the NRC staff for review. The

report shall contain four sections: (i) Thermal Annealing Operating Plan, (ii) Requalification Inspection and Test Program, (iii) Program for determining Fracture Toughness Recovery and Reembrittlement Trend, and (iv) a section identifying any changes to the description of the facility as described in the updated final safety analysis report (FSAR) which constitute unreviewed safety questions (USQs) under § 50.59, and changes to the facility's technical specifications, which are necessary either to perform the thermal annealing, or to operate following completion of the annealing. Section 50.66(a) provides that the NRC will, within three years of submission of a licensee's annealing report, document its views on whether the plan for conducting thermal annealing constitutes an unreviewed safety question or otherwise requires a change to the plant's technical specifications. Such a determination is the threshold determination for whether NRC approval is required before undertaking the activity. In the event the NRC were to conclude, contrary to the licensee, that an unreviewed safety question is present or a change to the technical specifications is necessary, the NRC would, as a discretionary enforcement matter, issue an appropriate order to the licensee prohibiting annealing prior to issuance of a license amendment. An opportunity for formal adjudicatory hearing would be provided in connection with the license amendment; however, if the NRC makes a finding that the proposed change to the FSAR description or technical specification constitutes a "no significant hazards consideration" pursuant to Section 189.(a)(2)(A), the licensee may conduct the thermal annealing prior to completion of any hearing. In any event, at least 30 days before the licensee starts to thermal anneal and before the NRC completes its review, the NRC will hold a public meeting on the licensee's proposed Thermal Annealing Plan and Requalification Inspection and Test Program.

Following the completion of the annealing operation, the licensee must confirm in writing to the Director, Office of Nuclear Reactor Regulation, that the thermal annealing was performed in accordance with the Thermal Annealing Operating Plan and the Requalification and Inspection Test Program. In support of this confirmation, the licensee must submit a report, within three months of completion or termination of the anneal, that presents the results of the annealing operation. Within two weeks of the

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licensee's written confirmation that the thermal annealing was completed in accordance with the Thermal Annealing Plan, and prior to restart, the NRC shall: (1) Place in its public document room a summary of the NRC staff's inspection of the licensee's thermal annealing process to confirm that the thermal annealing was completed in accordance with the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program, and (2) hold a public meeting with the licensee to permit the licensee to explain the results of the reactor vessel annealing to the NRC and the public, for the NRC to discuss its inspection of the reactor vessel annealing process, and to provide an opportunity for the public to comment to the NRC on the annealing operation and the results of the Staff's inspection.

Within 45 days of the licensee's written confirmation that the thermal annealing was completed, the NRC shall complete full documentation of the NRC's inspection of the licensee's annealing process to confirm that the annealing was completed in accordance with the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program.

The licensee may resume operation if: (1) The licensee concludes that the thermal annealing operation was performed in compliance with the Thermal Annealing Operating Plan, the Requalification Inspection and Test Program, and the provisions of Section 50.66(b), (2) a summary of the NRC's inspection of the thermal annealing is placed in the NRC public document room as required by Section 50.66(c) (2) and (3) the NRC holds the public meeting required by Section 50.66(f)(2), unless the staff takes action against the licensee. Since NRC approval to resume operation is not necessary, an opportunity for hearing would not be provided in this situation. If, however, the licensee cannot conclude that the thermal annealing was performed in compliance with the Thermal Annealing Operating Plan or the Requalification Inspection and Test Program, the licensee must submit a justification for continued operation to the Director. If the noncompliance presents an unreviewed safety question, as determined by the licensee or directed by the NRC following its review of the report, then the plant may not restart until the Director has approved restart. Those failures to comply with the Thermal Annealing Operating Plan and the Requalification Inspection and Test Program, which either (1) Are considered to be "unreviewed safety questions" or (2) require changes to the technical specifications as a result of the

noncompliances, would also be subject to an opportunity for a formal adjudicatory hearing in accordance with the Commission's regulations governing license amendments. However, the licensee may restart prior to completion of the hearing if the Director makes a finding that such restart constitutes a "no significant hazards consideration," as provided under Section 189.(a)(2)(A) of the Atomic Energy Act of 1954, as amended.

The regulatory process for thermal annealing and the associated hearing opportunities are consistent with long-standing NRC regulatory practices defining those matters which present sufficient potential effect on public health and safety (e.g., are unreviewed safety questions) to justify both prior NRC review of the change, and an opportunity for hearings (with the associated time and resource impacts on both the licensee and the NRC). With respect to the thermal annealing review process, the Commission reassessed the regulatory requirements and processes for assuring safety. The Commission determined that the most important safety matters are normally addressed in license conditions, technical specifications, and the FSAR. The regulatory process for NRC consideration of licensee-initiated changes concerning these matters, and the associated opportunities for hearings is in 10 CFR 50.59. In view of this well-established regulatory process for important safety information, the Commission determined that a regulatory process requiring NRC approval of a thermal annealing plan is not necessary, because the licensee is already required to comply with its license conditions, technical specifications, and FSAR. Important changes to license conditions, technical specifications, and FSAR from a safety standpoint are subject to both prior NRC review and approval and an opportunity for hearing. With respect to restart following completion of the annealing, the 15-day delay period should be sufficient time for review of the licensee's input given the NRC staff's understanding of the annealing operation plan prior to implementation, ongoing resident inspections and headquarters inspections of the implementation of thermal annealing operating plan. The Commission did not adopt NEI's suggestion for informal hearings where the Director must approve restart if the Thermal Annealing Operating Plan and Requalification Inspection and Test Program were not complied with, because the Commission does not see

any distinction (in terms of safety implications) between the subject matter of hearings under this rule, as compared with other actions under Part 50 which would require formal hearings.

As discussed earlier in the supplementary information, previously performed research analyses indicated the potential for plastic deformation of the main coolant piping for a typical U.S. plant design and anticipated annealing conditions. There are also questions regarding how thermal growth of the pressure vessel is treated, and the adequacy of the thermal and stress analyses used to predict response of the overall system under thermal annealing conditions. Additionally, there may be questions in other areas such as temperature limits for the concrete structures, and potential radiological hazards associated with removing and storing the reactor internals during the annealing process, and fire hazards associated with heating the vessel.

Recognition of the numerous complex technical questions related to 4 thermal annealing and of the potential benefits for operating nuclear power plants has resulted in a cooperative effort, funded by the U.S. Department of Energy and the industry, to perform Annealing Demonstration Projects. Projects are planned to demonstrate two different annealing processes, evaluating heater designs and vessel designs. It is anticipated that the annealing demonstration projects will answer many of the generic questions regarding thermal annealing of U.S. pressure vessel and piping designs.

The Thermal Annealing Report, required by the thermal annealing rule, is designed to facilitate a detailed review by the licensee of plant-specific questions and considerations in performing a thermal annealing. The proposed rule specifically discusses the potential for unreviewed safety questions and technical specification changes that may result from or be related to thermal annealing of the reactor pressure vessel. With completion of the demonstration projects and as the staff and industry gain experience with thermal annealing, many of the issues related to annealing will be better understood and related questions will be answered. However, until this experience is realized, the staff will critically review licensee determinations regarding unreviewed safety questions and the need for technical specification changes associated with each proposed thermal annealing. The level of staff effort is expected to be significantly greater during its review of the initial proposed

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vessel annealings than that which will be required after experience is gained.

The thermal annealing rule has been structured to provide time for the staff to thoroughly review the licensee's annealing plan and determination regarding unreviewed safety questions and the need for technical specification changes. If the staff identifies an unreviewed safety question or the need for a technical specification change, the licensee would be so notified and the existing NRC regulatory practices would be invoked to address the issues.

Backfitting Issues

Comments were received on backfitting issues from the Nuclear Utility Backfitting and Reform Group (NUBARG). NUBARG commented that they do not object to the new NRC position in Appendix G to 10 CFR Part 50 which prohibits core criticality before completion of hydrostatic pressure and leak tests as a conservative measure to enhance safety. However, they are concerned that amending Appendix G on the basis of a compliance exception may set a bad precedent for avoiding backfitting analyses. NUBARG stated that "The logic of the proposed rule would seem to allow the NRC to avoid a backfitting analysis by (1) invoking the intent of one requirement to override the explicit provisions of another, (2) using the compliance exception when the practice being eliminated seems specifically contemplated by and specified in the pertinent regulation, and (3) overlooking the fact that the NRC has apparently accepted this position in practice by some licensees * * *". In NUBARG's view, this proposed amendment should be supported by a backfit analysis. The Commission has reviewed this comment and has concluded that use of the compliance exception under § 50.109 for the changes in Appendix G to 10 CFR Part 50 is appropriate. The Backfit Analysis section contains further discussion on this subject. The issue of explicitly prohibiting core criticality before completing pressure and leak tests has been addressed previously (letter from J. M. Taylor, EDO, to N. S. Reynolds and D. F. Stenger, NUBARG, dated February 2, 1990) and the NUBARG comment did not provide new information. The Commission has concluded that any backfit requirements in this amendment are necessary to bring the facilities into compliance with licenses, or the rules and orders of the Commission, or into conformance with written commitments by the licensees. Therefore, a backfit analysis is not required pursuant to 10 CFR 50.109(a)(4)(i).

NUBARG also commented on the amendment to Appendix H to 10 CFR Part 50 regarding surveillance that would preclude reducing the amount of testing if the initial test results agreed with predicted results. Although NUBARG recognizes the change would be prospective, it believes that NRC should provide flexibility to allow continued relief for any licensee who lacks such an authorization but has relied on the provision. The Commission believes that sufficient flexibility already exists in that licensees who do not have an authorization may seek an exemption under 10 CFR Part 50.12.

Another aspect of the backfitting concern raised by NUBARG addresses the proposed amendment to § 50.61 which, based on the adequate protection exception, would impose a uniform methodology for calculating the reference temperature. NUBARG contends that to rely on the adequate protection exception is arguably erroneous because the change in methodology is not likely an adequate protection issue (i.e., for most plants, the screening criteria will not be approached for many years). As discussed further under Backfit Analysis, the Commission believes that a new backfit analysis is not required for this conforming change, which corrects an inadvertent omission from the previous rulemaking. Therefore, the Commission concludes that the adequate protection basis for the backfit continues to apply from the previous rulemaking (56 FR 22300; May 15, 1991) to § 50.61.

Criminal Penalties

For purposes of Section 223 of the Atomic Energy Act (AEA), the Commission is issuing the final rule under one or more of Sections 161b, 161i or 161o of the AEA. Willful violations of the rule will be subject to criminal enforcement.

Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of human environment and, therefore, an environmental impact statement is not required.

The individual actions covered in this final rule would either serve to enhance safety of the reactor pressure vessel, thereby decreasing the environmental impact of plant operation, or have no

impact on the environment. Therefore, in all cases these individual actions will not have an adverse impact on the environment.

PTS Rule (10 CFR 50.61)

The inclusion of thermal annealing as an option for mitigating the effects of neutron irradiation serves to decrease the environmental impact of plant operation by enhancing the safety of the reactor pressure vessel.

The incorporation of the Regulatory Guide 1.99, Revision 2, method for determining RT_{NDT} into the PTS rule has no impact on the environment because this change will result in values of RT_{PTS} which are consistent with those currently used in plant operation.

The restructuring of the PTS rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, an environmental assessment is not necessary for this change.

Thermal Annealing Rule (10 CFR 50.66)

The thermal annealing rule (10 CFR 50.66) permits and provides requirements for the thermal annealing of a reactor vessel to restore fracture properties of the reactor vessel material which have been degraded by neutron irradiation. This final rule only applies when a licensee elects to use it. The final rule provides an alternative for assuring compliance with the requirements in 10 CFR 50.61 and Appendix G of 10 CFR Part 50.

The application of thermal annealing to a reactor vessel improves the condition of the reactor vessel material. In addition, this rule establishes requirements to avoid damaging the reactor system and to protect against accidents during the annealing operation.

This rule is one of several regulatory requirements that will function to ensure reactor vessel integrity. In that sense, this rule has a positive impact on the environment by reducing the potential for vessel failure. For these reasons, the Commission has determined that there is no significant impact and, therefore, an environmental statement is not required.

Appendix G to 10 CFR Part 50

The prohibition of core criticality before completion of the required pressure and leak tests will serve to reduce the potential for vessel failure, and thereby decrease the potential environmental impact of plant operation.

The restructuring of Sections IV and V of Appendix G is clarifying or corrective in nature, and is the type of

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action described in categorical exclusion 10 CFR 51.22(o)(2). Therefore, an environmental assessment is not necessary for this change.

The changing of the reference from Appendix G of Section III of the ASME Code to Appendix G of Section XI of the ASME Code has no impact on the environment because the requirements in the Appendices are identical. Therefore, there is no adverse impact on the environment from this change.

The referencing of the thermal annealing rule results in no adverse impact on the environment because Appendix G currently permits the use of thermal annealing to reduce fracture toughness loss of the RPV materials due to irradiation embrittlement.

Appendix H to 10 CFR Part 50

Concerning the amendments to Appendix H to 10 CFR Part 50 in the final rule, the requirement that all irradiation surveillance tests be made (i.e., no reduction in testing is permitted) will have a positive impact on the environment in helping to assure the integrity of the reactor pressure vessel.

The restructuring of Section II.C is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, an environmental assessment is not necessary for this change.

The clarification of the applicable version of ASTM Standard E 185 will result in no adverse impact to the environment since there will be no change to current surveillance programs. Changes to future surveillance programs will make the programs more effective in assessing irradiation embrittlement effects to the RPV materials, thereby helping to assure the integrity of the reactor pressure vessel.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0011.

The public reporting burden for this collection of information is estimated to average 6,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records

Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Analysis

The NRC staff has prepared a regulatory analysis for the amendments to 10 CFR 50.61, Appendix G of 10 CFR Part 50, and Appendix H of 10 CFR Part 50 that describes the factors and alternatives considered by the Commission in deciding to issue these amendments. A copy of the regulatory analysis is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20555-0001. Single copies of the analysis may be obtained from Alfred Taboada, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6014.

Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant economic impact on a substantial number of small entities. The rules which are affected by the amendments will: (1) Preclude brittle fracture of embrittled vessels during PTS events, (2) provide the general fracture toughness requirements for RPVs, including ductile fracture toughness requirements and pressure-temperature limits, (3) provide the requirements for surveillance programs to monitor irradiation embrittlement of RPV beltline materials, and (4) provide for a method for restoring the fracture toughness of RPV beltline materials used in nuclear facilities licensed under the provision of 10 CFR 50.21(b) and 10 CFR 50.22. The companies that own these facilities do not fall within the scope of the definition of "small entities" as set forth in the Regulatory Flexibility Act, the Small Business Size Standards in regulations issued by the Small Business Administration at 13 CFR Part 121, or the size standards established by the NRC at 10 CFR 2.810 (60 FR 18344; April 11, 1995).

Backfit Analysis

PTS Rule (10 CFR 50.61)

The revision to § 50.61 requires licensees to calculate RT_{PTS} using the same methodology specified in Regulatory Guide 1.99, Revision 2, for determining RT_{NDT} . This change was logically a requisite part of the previous rulemaking (56 FR 22300; May 15, 1991) to § 50.61 that set forth a unified method for calculating radiation embrittlement of the reactor beltline materials in Part 50. However, the Commission, at that time, inadvertently failed to make the conforming change to § 50.61. The Commission believes that the backfit statement for the previous amendment, which determined that the backfit was necessary to ensure that the facility continues to provide adequate protection to the public health and safety, is applicable to this conforming change to § 50.61.

The restructuring of the PTS rule does not impose any backfits as defined in 10 CFR 50.109(a)(1) because there is no change in requirements due to this restructuring.

The inclusion of thermal annealing in § 50.61 does not constitute a backfit as defined in 10 CFR 50.109(a)(1) because the decision to perform annealing is voluntary, no annealing has been conducted in this country, and there are no staff positions or Commission requirements relied upon by licensees that are being changed.

Thermal Annealing Rule (10 CFR 50.66)

The final thermal annealing rule establishes requirements with respect to applications for thermal annealing. However, the Commission has determined that the rule does not impose a "backfit" as defined in 10 CFR 50.109(a)(1). The thermal annealing rule does not require any licensee to perform thermal annealing. Under existing requirements, all licensees are required to evaluate whether they exceed the PTS screening limits in 10 CFR 50.61 and the Charpy upper shelf screening limits in Appendix G of CFR Part 50. However, these rules provide an alternative means for meeting these screening limits (e.g., performing thermal annealing). No licensee currently has pending before the NRC an application for thermal annealing, nor has any current licensee been granted permission to conduct thermal annealing. The rule does not reflect any new or different NRC staff position which conflicts with a prior NRC staff position or Commission rule. Thus, the final rule will have a purely prospective effect on future applications for thermal annealing. The Commission has stated in other rulemakings

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establishing prospective requirements (10 CFR Part 52 and the License Renewal Rule, 10 CFR Part 54) that the Backfit Rule was not intended to protect the future applicant from current changes in Commission requirements. Accordingly, the Commission concludes that the rule does not impose backfits and a backfit analysis need not be prepared for the final thermal annealing rule.

Appendix G to 10 CFR Part 50

The restructuring of Sections IV and V of this appendix, referencing of the thermal annealing rule, changing the reference from Appendix G of Section III of the ASME Code to Appendix G of Section XI of the ASME Code, and deleting the "design to permit annealing" requirement do not impose any backfits as defined in 10 CFR 50.109(a)(1), because they are either prospective in nature or are of a clarifying nature.

10 CFR Part 50, Appendix G, Paragraph IV.2.d. of the final rule explicitly prohibits core criticality before completion of ASME Code hydrostatic pressure and leak tests. This is intended to make clear that licensees may not use nuclear heat in order to perform ASME Code hydrostatic tests. This amendment can be construed as a backfit, inasmuch as the prior version of 10 CFR Part 50, Appendix G, Paragraph IV.A.5 could be read to permit core criticality during ASME hydrostatic tests and Section XI of the ASME Code does not explicitly prohibit core criticality prior to completion of these tests. However, the Commission never intended the disputed language in Paragraph IV.A.5 of Appendix G to permit core criticality before successful completion of the required ASME hydrostatic tests. The scope of Appendix G is "fracture toughness requirements" only; that scope is stated clearly in the title of Appendix G, and Appendix G was not intended to specify system operational requirements. It is not correct, therefore, to interpret paragraph IV.A.5. as permitting nuclear hydrotesting. The final phrase in IV.A.5, "depending on whether the core is critical during the test," was included in the rule for the sake of completeness, to specify appropriate fracture toughness requirements in the event that a licensee for some reason wanted to have the core critical during hydrotest, and was given approval to do so (e.g., as in the case of the Hatch units, where nuclear hydrotesting was allowed one last time as an approved exception.) The ASME Code's hydrostatic testing provisions for the reactor coolant pressure boundary (RCPB) provides the necessary

assurance that GDC-14 is met. GDC-14 *inter alia* requires RCPB testing in order to provide an extremely low probability of RCPB failure, in terms of abnormal leakage, rapidly propagating failure, and gross rupture. Using heat produced by a critical reactor core to perform such testing essentially undercuts the basic safety principle embodied in GDC-14 that testing should be completed prior to nuclear reactor operation. It makes little sense to allow core criticality—thereby allowing the reactor to be in an operational condition where a loss of coolant could have significant consequences—prior to successful completion of tests that are intended to ensure that the probability of such coolant losses during such an operational condition are extremely low.¹ The ASME Code, Section XI, requires that the System Leakage Test be performed prior to plant startup following each refueling outage (Table-2500-1, Examination Category B-P, Note 2). The only way to interpret the ASME Code as permitting core criticality prior to completion of the hydrostatic tests is to read the term, "plant startup" as referring to something other than reactor criticality. This is neither the normal industry practice, nor has it been the NRC staff's longstanding interpretation of this provision of the ASME code. Indeed, it does not appear that the NRC staff has construed either Appendix G, Paragraph IV.A.5 nor Section XI of the ASME Code as permitting core criticality prior to successful completion of ASME Code hydrostatic tests. Moreover, the vast majority of nuclear utility licensees do not use nuclear heat to perform ASME code hydrostatic tests. This suggests that most licensees hold the same interpretation of Appendix G and Section XI of the ASME Code as the Commission. In sum, the Commission believes Section XI of the ASME Code, which is endorsed by 10 CFR 50.55a, implicitly prohibits core criticality prior to successful completion of hydrostatic testing. Therefore, the Commission concludes that the change in the language of Appendix G, Paragraph IV.2.d. is necessary to assure compliance with 10 CFR 50.55a and the ASME Code.

¹ The Commission is aware that NUBARG has presented an argument to the NRC that performance of ASME Code hydrostatic tests are more effective at the higher temperatures achieved when using nuclear heat, as compared with the heat sources normally employed by utilities in performing the hydrostatic tests. However, for the reasons set forth in the 1990 letter from James M. Taylor, EDO to N. S. Reynolds and D.F. Stenger, NUBARG, the Commission rejects this argument.

The Commission has concluded that any backfit requirements in this amendment are necessary to bring the facilities into compliance with licenses, or the rules and orders of the Commission, or into conformance with written commitments by the licensees. Therefore, a backfit analysis is not required pursuant to 10 CFR 50.109(a)(4)(i).

Appendix H to 10 CFR Part 50

The amendments to Appendix H to 10 CFR Part 50 are either prospective in nature or of a clarifying nature, and hence do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and record keeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR Part 50.

61 FR 232
Published 1/3/96

10 CFR Part 50
RIN 3150-AD57

Fracture Toughness Requirements for Light Water Reactor Pressure Vessels

Correction

In rule document 95-30665 beginning on page 65456 in the issue of Tuesday, December 19, 1995, make the following correction:

PART 50—[CORRECTED]

On page 65468, in the first column, in the authority citation for Part 50, in the first paragraph, in the fourth line, "83 Stat. 1444" should read "83 Stat. 444".

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61 FR 6762
Published 2/22/96
Effective 4/22/96

*Employee Protection Policies; Minor
Amendments*

See Part 19 Statements of Consideration

61 FR 30129
Published 6/14/96
Effective 7/15/96

10 CFR Part 50
RIN 3150-AF20

Production and Utilization Facilities; Emergency Planning and Preparedness Exercise Requirements

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is revising its emergency planning regulations. This amendment allows greater flexibility in the licensee's emergency preparedness training activities in the 2-year period between biennial full-participation exercises. The amendment preserves the requirement that each licensee, at each site, conduct an emergency preparedness exercise biennially, with full participation by State and local governments that are within the plume exposure pathway emergency planning zone (EPZ); reduces the required frequency of exercising the licensee's onsite emergency plan from annual to biennial; requires licensees to ensure that adequate emergency response capabilities are maintained between biennial exercises by conducting drills, at least one of which must involve some of the principal functional areas of the licensee's onsite emergency response capabilities; and requires licensees to continue enabling State and local governments that are in the plume exposure pathway emergency planning zones (EPZs) to participate in drills.

With this amendment, the Commission is granting, in part, a petition for rulemaking submitted by the Virginia Electric Power Company on December 9, 1992 (PRM-50-58).

EFFECTIVE DATE: July 15, 1996.

FOR FURTHER INFORMATION: Contact Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-415-6534); E-mail MTJ1@nrc.gov.

SUPPLEMENTARY INFORMATION:

Background

The NRC received a petition for rulemaking submitted on December 9, 1992, by the Virginia Electric Power Company that was assigned Docket No. PRM-50-58. The petitioner requested that the NRC amend, Section IV.F.2., of 10 CFR part 50, appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to change the requirement that each site exercise its emergency plan biennially rather than annually. The petitioner's proposed amendment would have required each licensee to conduct a biennial full participation exercise of the emergency plan at each site and to take actions necessary to ensure that its emergency response capability is maintained during the 2-year interval. The petitioner believes that the annual graded exercise is but one of many indicators designed to provide reasonable assurance that actions can and will be taken during an emergency situation that will provide for the health and safety of the public. The NRC published a notice of receipt for the petition on March 4, 1993 (58 FR 12341). A total of 32 comment letters were received and considered when developing a proposed rule concerning the issues raised by the petitions.

A notice of proposed rulemaking was published in the *Federal Register* on April 14, 1995 (60 FR 19002). Public comments were requested by July 13, 1995. A total of 18 comment letters were received, of which 12 utilities, 2 State emergency management agencies, and the Nuclear Energy Institute (NEI) supported the proposed rule change. One State emergency management agency and an environmental group opposed the proposed rule change. One letter received from a State emergency management agency had no comment on the proposed rule change.

NRC Response to Public Comments

The comment letters that were received provided many thought-

provoking and constructive comments. The Commission's evaluation of and response to these comments is presented in the following section.

Issue 1. While the biennial exercise provides the opportunity for broad based State and local participation in exercising offsite plans and procedures, the annual graded utility exercises enhance the biennial exercise process by providing State liaison personnel and their utility counterparts the opportunity to remain proficient. A 2-year gap will lessen proficiency.

Response. It is clearly not the Commission's intent to lessen the proficiency at any level of the emergency planning organization (onsite or offsite) with the rule change. The Commission believes that interaction and training problems that might arise as a result of deleting the annual onsite exercise would be resolved by requiring licensees to enable any State or local Government to participate in the licensee's drills when requested by the State or local Government. The Commission is confident that, if a State governmental emergency response agency feels the need to participate in a drill that would require specific offsite interaction and decisionmaking capability, the licensee would accommodate the State agency's request within the framework of the drills that the licensee conducts throughout the 2-year period between the biennial full participation exercise. In fact, a State who was originally against granting the petition for rulemaking because of similar concerns stated the following in their comment on the proposed rule.

"We were among those initially opposed to the Virginia Electric Power Company petition that prompted this rule change, primarily because of a perceived potential for a diminution of emergency preparedness capability on the part of licensees. However, we acknowledge that the compromise embodied in the Commission's proposed rule change offers adequate assurance that ongoing licensee emergency preparedness activities will continue at a reasonable level. Because of the number of licensees and the capacity of the State's emergency response organizations, when appropriate (this State) will invoke the language of the proposed rule change that requires licensees to ' * * * enable any State or local government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such State or local government.'"

Issue 2. County, State, and utility emergency preparedness will degrade under a biennial schedule. Mini-drills will not take the place of annual

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exercises as now constituted. Further, States have been encouraging more Federal exercise participation by the Federal Emergency Management Agency (FEMA) and NRC. The proposed change would cut back on the opportunities to test current personnel and train new personnel.

Response. The Commission disagrees. The rule change does not require "mini-drills" to replace annual exercises. The rule change does require that "the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained * * * by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities." (10 CFR part 50, appendix E, IV.F.2.b.)

Additionally, the opportunity to test and train new personnel is provided by requiring that "Licensees shall enable any State or local Government * * * to participate in the licensee's drills." (Id at IV.F.2.e.)

Issue 3. There is a need for clarity regarding State and local participation in the exercises and drills that are proposed to replace the annual NRC graded exercise. At 60 FR 19002; dated April 14, 1995, licensees are charged to "enable" States and local governments to participate in these exercises and drills, but at 60 FR 19006, activating all response facilities (Technical Support Center, (TSC); Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) is not necessary. Because State and local governments coordinate interaction through the EOF and Media Centers, clarification is required. For example, perhaps the utility would be charged with exercising the EOF and Media Centers as a part of at least one exercise and/or drill each year.

Response. Based on the extensive coordination and cooperation between licensees and State and local governments over the last 15 years, the Commission is confident that, if a State or local governmental emergency response agency felt the need to participate in a drill that included interaction at the EOF and Media Centers, the licensee would accommodate the request within the framework of the drills that the licensee conducts throughout the 2-year period between the biennial full participation exercises.

Issue 4. Rather than eliminating any requirements, it is suggested that each site initially be granted a waiver for "off-year" integrated exercises. The waiver would be effective only as long

as an acceptable level of emergency response capability is maintained.

Response. The Commission disagrees. The Commission believes that the proposed rule would accomplish the commenter's objective without the extensive NRC resources that implementing the commenter's suggestion would require.

Issue 5. The Commission does not appear to have addressed the quantitative question about expected turnover rates that would be important in determining whether biennial exercises could substantially reduce local team skills.

Response. Please see the response to Issue 1. Additionally, the Commission has always been and continues to be committed to the principle that there exists "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." If, this finding is jeopardized either at the State or local governmental level, additional training would be warranted and would be provided by participating in the drills the licensee conducts between biennial exercises.

Issue 6. The Commission has not adequately addressed local Government comments on the importance of regular exercises for improving coordination and communication.

Response. The Commission did not receive any comments from local governments relating to this petition for rulemaking. Nonetheless, the Commission is confident that if a local Government wished to improve its coordination and communication capabilities, licensees would welcome its participation in one or more of the onsite drills that will be conducted between the biennial exercises.

Issue 7. The Commission has not addressed the FEMA concern that regular cooperation with offsite teams may play a critical role in their preparedness, which may be especially important in view of the potential role such teams may play as first responders in actual emergencies.

Response. Prior to publishing the proposed rule, the Commission received FEMA's assurance that their concerns with the petition for rulemaking had been resolved. Nonetheless, regular cooperation between offsite and licensee emergency response teams will be ensured by the requirement that licensees enable any state or local Government within the plume exposure pathway emergency planning zone to participate in the licensee's drills upon request.

Issues Raised by Petitioner

The petitioner characterizes the present requirement as one that is resource intensive but of marginal importance to safety. The petitioner has identified grounds for change for a number of issues associated with the current requirement to conduct an emergency plan exercise annually. The issues presented by the petitioner follow:

(1) The requirement to conduct an integrated annual exercise is not clearly defined. Therefore, the regulation should be clarified.

(2) The existing regulation, 10 CFR part 50, appendix E, is inconsistent with other regulations that govern the frequency of offsite response organization integrated exercises (i.e., 44 CFR part 350).

(3) The performance of offsite response organizations during biennial exercises has confirmed that a biennial frequency is sufficient to provide the reasonable assurance finding.

(4) The existing regulation, 10 CFR 50.54(t), provides for an independent review of the adequacy of the program.

(5) The existing requirement to conduct an annual exercise is not necessary to achieve the underlying purpose of the rule. A biennial exercise is sufficient to provide an acceptable formal confirmation of capability.

(6) Reconsideration of the requirement is warranted in light of the completion and implementation of enhanced emergency preparedness facilities, the current level of industry proficiency and performance, and the increased industry sensitivity to emergency preparedness.

(7) Personnel could be utilized more effectively in their normal professional function rather than by participating in a resource-intensive integrated test that only serves to confirm the already existing level of the response capability.

(8) Emergency planning resources could be utilized more effectively to further the development and maintenance of emergency preparedness activities.

Commission Response

The Commission believes that it is important, in light of public comment, as well as the discussion provided in the petition, to clarify NRC's intent (under the existing rule) that licensees need not conduct annual exercises with scenarios that progress to severe core damage or result in offsite releases. Historically, these scenarios were used in both the biennial full-participation exercise of offsite emergency plans and the annual exercise of the licensee's

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onsite emergency plan; this is no longer necessary for the currently required annual exercises of the licensee's onsite emergency plan. Information Notice (IN) 87-54, "Emergency Response Exercises," was issued to clarify NRC intent in this regard and to provide detailed guidance, specifically on the types of "off-year" training activities that licensees can perform during the interval between the biennial full participation exercises to maintain adequate EP response capabilities and to satisfy the rule.

Some licensees have availed themselves of the flexibility afforded by the IN 87-54 guidance to conduct realistic, interactive "off-year" training activities that simulate less severe events, such as a minor fire, loss of electric power, or equipment failure, and focus on the capability of the onsite emergency response organization to diagnose problems and develop actions to successfully mitigate the scenario event. However, as noted in the petition, many licensees continue to employ severe accident scenarios in annual exercises of their onsite emergency plans.

Accordingly, the Commission is revising Section IV.F.2.b. of 10 CFR part 50, appendix E, to (1) reduce from annual to biennial the frequency of exercising the licensee's onsite emergency plan (which may be included in the biennial full participation exercise specified in IV.F.2.c.) and (2) require licensees to conduct training drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. This drill would be conducted between biennial full participation exercises to ensure that adequate emergency response capabilities are maintained. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decisionmaking, and plant system repair and corrective actions.

This approach is consistent with a comment from one State that favored the petition for rulemaking but preferred that some guidelines be included in appendix E requiring plant specific internal exercises during the "off-year" to ensure plant personnel familiarity with their response plans rather than the vague expectancy that this activity will be done. Furthermore, licensees would continue to enable State and local governments in the plume exposure pathway EPZs to participate in drills in the interval between exercises,

thus, preserving their training opportunities.

The Commission believes that the final rule may result in the reallocation and more effective utilization of resources in some licensees' emergency preparedness (EP) programs as they further the development and maintenance of emergency preparedness capabilities during the "off-year" periods. However, it is not clear that these changes will result in significant overall cost savings. The Commission cautions specifically against expectations that the final rule will necessarily result in significant reductions in NRC inspection activity concerning licensees' "off-year" EP maintenance activities. Also, licensees will, upon request, submit scenarios for NRC review as may be deemed necessary by NRC in support of future inspections.

Conclusion

Having considered the arguments presented by the petitioner as well as evaluating all public comments received, and based on a further understanding of the issues involved gained from 14 years of experience evaluating licensee emergency preparedness exercises, the Commission concludes that (1) the required frequency for exercising the licensee's onsite emergency plan should be reduced from annual to biennial, (2) the means by which licensees are expected to train and maintain their emergency response capabilities and readiness in the 2-year interval between evaluated exercises should be changed to require licensees to conduct drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities, and (3) opportunities for training of State and local Government personnel must be preserved.

The principal functional areas of emergency response include management and coordination of emergency response, accident assessment, protective action decisionmaking, and plant system repair and corrective actions.

During the specified drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC); and the Emergency Operations Facility (EOF)) would not be necessary. Licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems

(success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.

The final rule relieves licensees from the current requirement to conduct a full formal exercise of the licensee's onsite emergency plan annually, and gives licensees the flexibility to choose the activities to be conducted in the 2-year period between biennial full-participation exercises in order to maintain their emergency response capabilities. Greater flexibility in the training of the onsite emergency response organization can provide significant benefits to some licensees. For example, licensees can eliminate the practice of developing scenarios that proceed to severe core damage, offsite releases, or to higher emergency classification levels. Licensees will have greater opportunity to conduct realistic emergency response training with supervised instruction that allows the operating staff to consider accident management strategies, diagnose problems, and be given credit for actions that would mitigate scenario events.

This approach is also responsive to public commenters who expressed concern about a possible decrease in licensee training and readiness in the period between biennial exercises. Under this approach, licensees will still be required to conduct emergency response training and drills of the onsite emergency response organization, as well as provide training opportunities to State and local Government personnel during the interval between biennial exercises. The final rule completes NRC action in response to PRM-50-58. The final rule grants the petitioner's request that the frequency of required onsite emergency response plan exercises be reduced from annual to biennial.

Additionally, 10 CFR 50.47(a)(1) is being revised in order to correct a typographical error that appeared in the 1993 edition of Title 10, Parts 0 to 50 of the Code of Federal Regulations. In the 1993 edition, the word "protection" was substituted for "protective measures" in 10 CFR 50.47(a)(1). This action corrects this paragraph to read as follows: "* * * reasonable assurance that adequate protective measures can and will be taken * * *"

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR part 51, subpart A, that this rule is not a major Federal action significantly

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affecting the quality of the human environment and therefore, an environmental impact statement is not required. The rule will update and clarify the emergency planning regulations relating to exercises. It does not involve any modification to any plant or revise the need for or the standards for emergency plans. There is no adverse effect on the quality of the environment. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.). Existing requirements were approved by the Office of Management and Budget approval Number 3150-0011.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; Telephone: (301) 415-6534.

Regulatory Flexibility Act Certification

The final rule does not have a significant impact on a substantial number of small entities. The final rule updates and clarifies the emergency planning regulations relating to exercises at nuclear power plants. Nuclear power plant licensees do not fall within the definition of small business in Section 3 of the Small Business Act (15 U.S.C. 632), the Small Business Size Standards of the Small Business Administration in 13 CFR part 121, or the Commission's Size Standards published at 56 FR 56671 (November 6, 1991). As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that the final rule will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required.

Backfit Analysis

The final rule clarifies the intent of the existing regulation and facilitates greater flexibility in licensees' conduct of "off-year" emergency response training activities. This action does not seek to impose any new or increased requirements in this area. The changes permit, but do not require, licensees to change their existing emergency plans and procedures to employ scenarios in "off-year" training or drills that do not go to severe core damage or result in offsite exposures. No backfitting is intended or approved in connection with this final rule change.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, reporting and record keeping requirements.

For the reasons set out in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 553; the NRC is adopting the following amendments to 10 CFR part 50.

61 FR 39278
Published 7/29/96
Effective 8/28/96

10 CFR Parts 2, 50, and 51

RIN 3150-AE96

Decommissioning of Nuclear Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations

on the decommissioning procedures that lead to the termination of an operating license for nuclear power reactors. The final amendments clarify ambiguities in the current rule and codify procedures that reduce the regulatory burden, provide greater flexibility, and allow for greater public participation in the decommissioning process. Some minor amendments pertain to non-power reactors and are for purposes of clarification and procedural simplification. The Commission believes that the final amendments will enhance efficiency and uniformity in the regulatory process of decommissioning nuclear power plants.

EFFECTIVE DATE: August 28, 1996.

FOR FURTHER INFORMATION CONTACT: Dr. Carl Feldman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6194; or S. Singh Bajwa, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-1013.

SUPPLEMENTARY INFORMATION:

Background

On June 27, 1988 (53 FR 24018), the Commission promulgated decommissioning regulations. On July 20, 1995 (60 FR 37374), the Commission issued proposed amendments to these regulations. A discussion of the current requirements and proposed amendments follows.

Current Requirements

Within 2 years after a licensee permanently ceases operation of a nuclear reactor facility, it must submit a detailed decommissioning plan to the NRC for approval, along with a supplemental environmental report that addresses environmental issues that have not already been considered. Based on these submittals, the NRC reviews the licensee's planned activities, prepares a Safety Evaluation Report (SER) and an environmental assessment (EA), and either makes a negative declaration of impact (the usual case) or prepares an environmental impact statement (EIS). Upon NRC approval of the decommissioning plan, the Commission issues an order permitting the licensee to decommission its facility in accordance with the approved plan. As part of the approval process, the opportunity for a hearing under subpart G of 10 CFR part 2, is made available to the public. Once the decommissioning process is completed and the NRC is satisfied that the facility has been

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radioactively decontaminated to an unrestricted release level, the NRC terminates the license.

If the licensee chooses to place the reactor in storage and dismantle it at a later time, the initial decommissioning plan submittal need not be as detailed as a plan for prompt dismantlement. However, before the licensee can begin dismantlement, a detailed plan and environmental report must be submitted and approved by the Commission.

Before the decommissioning plan is approved, the licensee cannot perform major decommissioning activities. If a licensee desires a reduction in requirements because of the permanent cessation of operation, it must obtain a license amendment for possession-only status. This is usually granted after the licensee indicates that the reactor has permanently ceased operations and fuel has been permanently removed from the reactor vessel.

A licensee is required to provide assurance that at any time during the life of the facility, through termination of the license, adequate funds will be available to complete decommissioning. For operating reactors, the amount of decommissioning funding required is generically prescribed in 10 CFR 50.75. Five years before license expiration or cessation of operations, a preliminary decommissioning plan containing a site-specific decommissioning cost estimate must be submitted and the financial assurance mechanism must be appropriately adjusted. Finally, the decommissioning plan, submitted within 2 years after permanent cessation of operations, must provide a site-specific cost estimate for decommissioning and a correspondingly adjusted financial assurance mechanism. For delayed dismantlement of a power reactor facility, an updated decommissioning plan must be submitted with the estimated cost of decommissioning and the licensee must appropriately adjust the financial assurance mechanism. Before approval of the decommissioning plan, licensee use of these funds would be determined on a case-specific basis for premature closure, when accrual of required decommissioning funds may be incomplete.

Proposed Amendments

The degree of regulatory oversight required for a nuclear power reactor during its decommissioning stage is considerably less than that required for the facility during its operating stage. During the operating stage of the reactor, fuel in the reactor core undergoes a controlled nuclear fission reaction that generates a high neutron flux and large

amounts of heat. Safe control of the nuclear reaction involves the use and operation of many complex systems. First, the nuclear reaction must be carefully controlled through neutron absorbing mechanisms. Second, the heat generated must be removed so that the fuel and its supporting structure do not overheat. Third, the confining structure and ancillary systems must be maintained and degradation caused by radiation and mechanical and thermal stress ameliorated. Fourth, the radioactivity resulting from the nuclear reaction in the form of direct radiation (especially near the high neutron flux areas around the reactor vessel), contaminated materials and effluents (air and water) must be minimized and controlled. Finally, proper operating procedures must be established and maintained with appropriately trained staff to ensure that the reactor system is properly operated and maintained, and that operating personnel minimize their exposure to radiation when performing their duties. Moreover, emergency response procedures must be established and maintained to protect the public in the event of an accident.

During the decommissioning stage of a nuclear power reactor, the nuclear fission reaction is stopped and the fuel (spent fuel assemblies) is permanently removed and placed in the spent fuel pool until transferred offsite for storage or disposal. While the spent fuel is still highly radioactive and generates heat caused by radioactive decay, no neutron flux is generated and the fuel slowly cools as its energetic decay products diminish. The spent fuel pool, which contains circulating water, removes the decay heat and filters out any small radioactive contaminants escaping the spent fuel assemblies. The spent fuel pool system is relatively simple to operate and maintain compared to an operating power reactor. The remainder of the facility contains radioactive contamination and is highly contaminated in the area of the reactor vessel. However, because the spent fuel is stored in a configuration that precludes the nuclear fission reaction, no generation of new radioactivity can occur. Safety concerns for a spent fuel pool are greatly reduced regarding both control of the nuclear fission process and the resultant generation of large amounts of heat, high neutron flux and related materials degradation, and the stresses imposed on the reactor system. Contaminated areas of the facility must still be controlled to minimize radiation exposure to personnel and control the spread of radioactive material. This situation is now similar to a

contaminated materials facility and does not require the oversight that an operating reactor would require.

Based on the preceding discussion, it should be noted that during the operating stage of the reactor a nuclear reaction must be sustained that has the potential during an accident to generate significant amounts of energy and radiation whose consequences can be severe. Moreover, the nature of maintaining and controlling a nuclear reaction and the complexity of systems and operations requirements necessary to prevent and mitigate adverse consequences requires considerable oversight by the NRC. During the decommissioning stage of the reactor, the potential for consequences that could result from an inadvertent nuclear reaction are highly unlikely. The systems required for maintaining the spent fuel in the spent fuel pool as well as the operations required to contain the remaining residual contamination in the facility and spent fuel pool are relatively simple. Consequently, the activities performed by the licensee during decommissioning do not have a significant potential to impact public health and safety and these require considerably less oversight by the NRC than during power operations.

The amendments proposed in July 20, 1995 (60 FR 37374), were intended to provide licensees with simplicity and flexibility in implementing the decommissioning process, especially with regard to premature closure. The proposed amendments were intended to clarify ambiguities in the current regulations, codify procedures and terminology that have been used in a number of specific cases, and increase opportunities for the public to become informed about the licensee's decommissioning activities. The amendments were designed to establish a level of NRC oversight commensurate with the level of safety concerns expected during decommissioning activities.

A. Initial activities. The decommissioning process outlined in the proposed amendments was similar in approach to that in the current decommissioning rule, but included flexibility in the type of actions that can be undertaken without NRC approval. Once a licensee permanently ceases operation of the power reactor, no major decommissioning activities (as defined in the proposed rule) could be undertaken until the public and the NRC were provided information by the licensee. Information required from the licensee in a Post-Shutdown Decommissioning Activities Report (PSDAR) consisted of the licensee's

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proposed decommissioning activities and schedule through license termination, an assessment of whether such proposed activities are bounded by existing analyses of environmental impacts, and a general decommissioning cost estimate for the proposed activities. The PSDAR would be made available to the public for comment.

Ninety days after the PSDAR submittal to the NRC and approximately 30 days after a public information meeting is held in the vicinity of the reactor site, the licensee could perform major decommissioning activities if NRC does not offer an objection. Before undertaking these activities, the licensee must provide certifications to the NRC that operations have permanently ceased and fuel has been permanently removed from the reactor vessel (elements not formally addressed in the current rule). Once these certifications have been provided to the NRC, the licensee could no longer operate the reactor.

Part 50 technical requirements would also be amended to properly cover the transition of the facility from operating to permanent shutdown status (which also is not explicitly covered in the current rule). Thus, a licensee who has permanently ceased operations and removed fuel from the reactor vessel would no longer need to obtain a license amendment to proceed with certain decommissioning activities within established regulatory constraints.

B. Major decommissioning activities. A major change from the current rule is that power reactor licensees would no longer be required to have an approved decommissioning plan before being permitted to perform major decommissioning activities. Under the proposed rule, licensees would be allowed to perform activities that meet the criteria proposed in § 50.59. Section 50.59 would be amended to include additional criteria to ensure that concerns specific to decommissioning are considered by the licensee. Based on NRC experience with licensee decommissioning activities, the Commission recognized that the § 50.59 process used by the licensee during reactor operations encompassed routine activities that are similar to those undertaken during the decommissioning process. The Commission concluded that the § 50.59 process could be used by the licensee to perform major decommissioning activities if licensing conditions and the level of NRC oversight required during reactor operations are continued, commensurate with the status of the facility being decommissioned. These

objectives were considered in the proposed rule as follows.

(1) The proposed rule would clarify, modify, and extend certain licensing conditions to decommissioning activities.

(2) Aside from changes to part 50, the final safety analysis report (FSAR), which is a licensing basis document for performing activities under § 50.59, would need to be updated to cover decommissioning activities.

(3) A PSDAR would be submitted to the NRC that would contain a schedule of planned decommissioning activities and provide a mechanism for timely NRC oversight. The licensee would provide written notification to the NRC before performing any decommissioning activity that is inconsistent with or makes significant schedule changes from the PSDAR.

C. License termination. A licensee wishing to terminate its license would submit a license termination plan for approval similar to the approach that is currently required for a decommissioning plan. However, the plan would be less detailed than the decommissioning plan required by the current rule, because it would not need to provide a dismantlement plan, and could be as simple as a final site survey plan. The approval process for the termination plan, as in the current rule, would provide for a hearing opportunity under 10 CFR part 2. The proposed rule recognized that, if the spent fuel is either offsite or in an independent spent fuel storage facility (ISFSI), that is covered under a part 72 license, the remaining facility licensed under part 50 is similar to a materials facility and a less formal hearing, under subpart L rather than subpart G of part 2, is more appropriate. As in the current rule, a supplemental environmental report would be required from the licensee that considers environmental impacts that are not already covered in existing EISs. An additional requirement, proposed for the purpose of keeping the public informed, is that a public meeting be held, after the licensee submits the license termination plan to the NRC, similar to the one held after the PSDAR submittal.

D. Financial assurance. The proposed rule would continue the same degree of financial assurance as the current rule, but provide more flexibility by allowing licensee's limited early use of decommissioning funds. This provision was presented in a draft policy statement entitled "Use of Decommissioning Trust Funds Before Decommissioning Plan Approval" (59 FR 5216; February 3, 1994) that was published by the Commission for

comment and incorporated into the proposed rule. Currently, licensee use of these funds is determined on a case-specific basis for prematurely shutdown plants. However, the proposed rule eliminated the requirement for a decommissioning plan and instead required a PSDAR submittal, which requires a decommissioning cost estimate. The proposed rule permitted some small percentage (3%) of the generically prescribed decommissioning funds to be available to the licensee for planning purposes ("paper studies") before permanent cessation of power reactor operations. Moreover, to permit the licensee to accomplish major decommissioning activities promptly, an additional generic funding amount would be made available (20%) before a site-specific cost estimate, which must be submitted to the NRC within 2 years after permanent cessation of operations (as in the current rule). The remainder of the funds would be made available after submittal of the site-specific cost estimate, as in the current rule. When the licensee submits the license termination plan, the same financial considerations as those in § 50.82(c) of the current rule would be required to provide assurance that the licensee has adequate funds to complete decommissioning and terminate the license.

E. License extension. The proposed rule clarified that a license that has expired is not terminated until the Commission terminates it and further clarifies what conditions prevail under such circumstances.

F. Grandfathering. The proposed rule applied to power reactor licensees who do not have an approved decommissioning plan on the effective date of the final rule. Licensees that already have an approved plan could, at their option, follow the provisions of the proposed rule.

G. Non-power reactors. There were some minor clarifications and procedural simplifications in the proposed rule for the non-power reactor decommissioning process. Otherwise, the current rule remained essentially unchanged.

Response to Comments

Thirty-four comment letters were received on the proposed rule from power reactor licensees, contractors, Government agencies, Agreement States, citizens groups, and individuals. The comment letters have been categorized into two groups representing commenters generally in favor of the proposed rule and those generally not in favor of the proposed rule. The commenters in favor of the rule (24)

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consisted of power reactor licensees, contractors, Government agencies, and an Agreement State. The commenters not in favor of the rule (10) consisted of citizens groups, individuals, and an Agreement State. The comments have been summarized and addressed through issue categories based on the proposed rule.

Issue 1—Proposed Rule Approach.

Comments. Commenters in support of the proposed rule were, to varying degrees, supportive of the proposed rule. There were a few commenters in this group who fully supported the proposed rule because it would facilitate efficient decommissioning of power plants by reducing regulatory burden, clarifying the applicability of regulations originally intended for operating reactors, allowing a phased approach to decommissioning, and allowing early partial use of the decommissioning trust fund. A few commenters supported the use of lessons learned from ongoing decommissioning projects, expanding public participation, and providing the rationale behind less formal NRC policies and practices in a way that satisfies the requirements of the Atomic Energy Act (AEA), Administrative Procedure Act (APA), and National Environmental Policy Act (NEPA).

While many commenters were generally supportive of the general concept of the proposed rule, they indicated that the proposed rule did not go far enough in reducing unnecessary regulatory burden. They noted that the existing NRC requirements regarding operating reactors were more than adequate to encompass decommissioning activities and, if anything, should be relaxed rather than expanded. These recommended relaxations pertained to such items as a more liberal attitude toward collection and use of decommissioning trust funds, elimination of unnecessary criteria concerning the use of the proposed § 50.59, elimination of proposed mandatory public meetings, elimination of the proposed Post-Shutdown Decommissioning Activities Report (PSDAR) submittal, and elimination of the proposed license termination plan or eliminating its inclusion into the license by amendment, including elimination of the accompanying proposed Subpart L or G hearing opportunity.

Commenters not in favor of the proposed rule were not supportive of the proposed rule to varying degrees. Many of these commenters were strongly opposed to the proposed rule and indicated that it allowed nuclear power generators to have discretionary

powers to regulate themselves; that NRC was abdicating its responsibility for protecting the health and safety of workers and the public; that, in allowing the decommissioning plan to be included in the Final Safety Analysis Report (FSAR) it could be revised without license amendment, thereby excluding the public from the process; and that major component removal should not be allowed before the decommissioning plan is approved by the NRC. These commenters expressed a variety of views indicating that the existing rule should be left alone or that the current rule should be left basically in place but made more efficient through better implementation and should include greater opportunities for public participation. Finally, a few commenters indicated that significantly greater public participation and oversight are necessary than that prescribed in the proposed rule.

Response. The proposed rule was developed to allow more flexibility in dealing with premature closures, the decommissioning process in general, and the experience gained from recent decommissioning activities such as those at Fort St. Vrain, Shoreham, and Rancho Seco, as well as early component removal at Yankee Rowe and Trojan. The justification and intent of the final rule is unchanged. The NRC's primary concern, as the licensee transitions to decommissioning, is that the licensee will have sufficient funds to complete decommissioning and that the activities undertaken by the licensee will protect the public and the environment. The intent of this final rule is to streamline some of the decommissioning requirements for power reactor licensees, especially in approval of the decommissioning plan before major decommissioning activities can be undertaken and in early use of decommissioning trust funds.

Specific issues addressed in the final rule are discussed in greater detail below.

Issue 2—PSDAR, FSAR, and update requirements.

Comments. Commenters in favor of the rule had various comments concerning the PSDAR, its required update, and the proposed update to the FSAR. Several commenters indicated that the PSDAR requirement should be eliminated because it is more stringent than requirements imposed on operating reactors, that the PSDAR should only require information (detailed schedule) pertaining to the current phase of decommissioning because dismantlement and site restoration may not occur for many years, that the word "synopsis" should be used to make it

clear that the PSDAR is a high-level summary, and that there should be consistency in the criteria for assessing environmental impacts between the PSDAR and the proposed § 50.59 requirements. A few comments suggested making the reporting requirements more efficient by combining them and updating the PSDAR and FSAR together, requiring updates no more than once every 36 months, or using a single PSDAR for multi-reactor sites. Several comments suggested that the updating requirement for the PSDAR be eliminated because § 50.59 already requires annual reporting requirements, that the term "significant" used in the proposed § 50.82(a)(6) should be tied to the § 50.59 safety evaluation, and that the extent of deviation in the PSDAR schedule that is permissible without notice to the NRC should be clarified. Finally, there was a comment that the final rule should make it clear that, if prompt decommissioning (dismantlement) is being pursued by the licensee, the PSDAR and license termination plan should be permitted to be the same document.

Commenters not in favor of the rule did not specifically address Issue 2. However, those commenters believed that the current rule requirements should be followed and that an approved decommissioning plan should be required before a licensee is permitted to perform major decommissioning activities.

Response. The purpose of the PSDAR is to provide a general overview for the public and the NRC of the licensee's proposed decommissioning activities until 2 years before termination of the license. The PSDAR is part of the mechanism for informing and being responsive to the public prior to any significant decommissioning activities taking place. It also serves to inform and alert the NRC staff to the schedule of licensee activities for inspection planning purposes and for decisions regarding NRC oversight activities. Because the final rule eliminates the need for an approved decommissioning plan before major decommissioning activities can be performed, the requirement to submit a PSDAR is less stringent than existing requirements for power reactor licensees.

The information required to be in the PSDAR is less detailed than the information required in the FSAR. Therefore, the PSDAR should not be combined with the FSAR because the two documents have different purposes. The final rule requires a written notification if activities are anticipated that would be inconsistent with the

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PSDAR activities previously described. The licensee's consideration of such inconsistency would include any milestone scheduling changes of dismantlement tasks and significant increases in decommissioning costs from those described in the PSDAR. The final rule will explicitly include the requirement that activities that would result in significant increases to decommissioning costs from those presented in the PSDAR must be a consideration in the notification requirements of § 50.82(a)(7). It is intended that regulatory guidance addressing the PSDAR Standard Format and Content will be issued soon after the final rule is published.

Currently, FSAR updates are required annually or 6 months after a refueling outage provided the interval between updates does not exceed 24 months. Because the FSAR is the basis for the use of § 50.59, the updates will need to be timely, so the final rule specifies a 24-month FSAR update for decommissioning activities for those nuclear power reactor licensees that have submitted the certifications of permanent cessation of operation and permanent removal of the fuel from the reactor vessel.

If prompt decommissioning is desired by the licensee, the licensee could elect early submittal of the PSDAR, before cessation of operation, and then use of § 50.59 would be permitted at cessation of operation, provided the certification of permanent fuel removal from the reactor vessel has been received and the public meeting had been held in advance. Although the PSDAR and license termination plan serve different purposes, and a formal approval process is required of the latter, the PSDAR and license termination plan can be combined. If a licensee chooses to combine the PSDAR and the license termination plan, the requirements for both would apply to the combined document, including the requisite waiting period, public meeting, and approval by amendment of the license termination plan. The procedure for approval of a license termination plan is similar to that currently required for approval of a decommissioning plan. For a multi-reactor site, the PSDAR could address the activities for all the reactors at the site if decommissioning of each will be undertaken at the same time.

Issue 3—Ninety-Day Time Period Prior to Undertaking Major Decommissioning Activities.

Comment. Several commenters noted that the proposed 90-day waiting period before major decommissioning activities could be undertaken did not address a

health and safety concern and that there are potentially high costs associated with such a delay because licensees could do a lot of dismantlement during this time that would be more efficient and cost advantageous. These commenters emphasized that all activities could be carried out under § 50.59 and the current licensing basis. They further stated that, if the 90-day hold is retained, clarification is needed regarding the NRC's opportunity to interpose an objection to proceeding with major decommissioning and that the NRC review should be based on areas of significant safety. Finally, one commenter expressed a concern that the 90-day waiting period would not allow enough time for public participation, including consideration of comments received from the public after NRC notices the licensee's PSDAR submittal and during a public meeting.

Commenters not in favor of the rule did not specifically address Issue 3. However, those commenters believed that the current rule requirements should be followed and that an approved decommissioning plan should be required before a licensee is permitted to perform major decommissioning activities.

Response. The commenters have correctly noted that the 90-day waiting period does not just address a health and safety issue. The NRC has chosen a 90-day waiting period prior to allowing major decommissioning activities to occur as the minimal time necessary for the NRC to evaluate the licensee's proposed activities and to conduct a public meeting. The public meeting is informational and may be chaired by a local official, with a presentation of the regulatory process for decommissioning by the NRC, presentation of planned decommissioning activities by the licensee, and participation by State representatives. A question and answer period would follow the presentations. By submitting the PSDAR before cessation of operation, a licensee could reduce the need for a waiting period (see the response to Issue 2 for an additional discussion on ways that the waiting period may be reduced).

Issue 4—Proposed Rule Modifications to § 50.59.

Comment. Many commenters approved of some form of the proposed modifications to § 50.59. Many of these commenters noted that § 50.59(e) in the proposed rule is more stringent than the existing requirements for operating reactors. These commenters believed that the existing § 50.59 criteria are adequate. Several commenters stated that the four proposed constraints contained in § 50.59(e) are somewhat

redundant to the proposed requirements in § 50.82; the PSDAR content plus update and the 90-day waiting period envelopes issues addressed by these criteria. These commenters believed that if § 50.59(e) criteria were kept they should be in a regulatory guide and not in a rule. Comments specific to the four criteria and why they should be eliminated follow.

Section 50.59(e)(1)(i) concerning foreclosure of the site for unrestricted release. It was noted that any event that detracts from this effort would be accidental in nature, and that the proposed rule provided no explanation of the types of activities that could result in foreclosing the site for unrestricted use.

Section 50.59(e)(1)(ii) concerning significantly increasing decommissioning costs. It was noted that cost estimate information is required prior to and through the decommissioning process, making this requirement unnecessary. Moreover, it was asserted that there is no logical correlation between the cost of a decommissioning activity and whether a license amendment should be required for that activity and that costs have never been a consideration in determining whether a proposed activity is consistent with the licensing basis for a plant. It was also noted that other regulatory bodies such as Public Utility Commissions and the Federal Energy Regulatory Commission, as well as economic pressure, will force a licensee to perform decommissioning cost effectively. It was recognized that actions taken by a licensee may diminish the decommissioning fund and it was suggested that the wording be changed to deal with actions that would "significantly inhibit the ability to fund decommissioning costs which would prevent successful decommissioning."

Section 50.59(e)(1)(iii) concerned environmental impacts not previously reviewed. It was noted that compliance with the operating license, technical specifications, and § 50.59 regarding unreviewed safety questions adequately preclude having significant adverse environmental impact that have not been reviewed. Moreover, the requirement is redundant to the requirement concerning unreviewed environmental impacts required in the content of the PSDAR specified in § 50.82.

Section 50.59(e)(1)(iv) concerned violating the terms of the existing license. It was noted that this requirement is redundant with language in § 50.59(a) that allows licensees to proceed with an activity so long as it does not violate technical specifications

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or constitute an unreviewed safety question as defined by § 50.59(a)(2). Also, it was noted that a license amendment is required for changes in technical specifications under the current § 50.59(c).

Most commenters who opposed the use of proposed § 50.59 were not in favor of the rule. One commenter stated that the analysis of the dismantlement activities proposed under § 50.59 to determine whether or not the activity generates any unreviewed safety issue should be provided to the NRC, rather than rely on an NRC audit as existing regulations provide. This analysis would also provide this information to the public for examination. Several of the commenters indicated that an after-the-fact review of § 50.59 activities would provide insufficient regulatory protection. Finally, a commenter stated that the presence of an NRC inspector is essential during decommissioning activities.

Response. The Commission concluded that the proposed § 50.59(e)(1)(iv) is redundant and should be eliminated from the final rule. The Commission reconsidered the need for the remaining § 50.59(e)(1) requirements and determined that placing them in § 50.82 would be more appropriate. The Commission also concluded that the requirement ensuring that no major decommissioning activities occur that would significantly increase decommissioning cost could be overly burdensome. Instead, an appropriate constraint would be to prohibit any decommissioning activities that result in there no longer being reasonable assurance that adequate funds will be available for decommissioning. However, the NRC needs to be aware of changes in decommissioning activities that would result in significantly increasing decommissioning costs and would require written notification of such intended actions. The other paragraphs in § 50.59(e) were placed in § 50.82(a) to ensure that they will be considered as overall constraints on the licensee's decommissioning activities, rather than separately for each contemplated activity as proposed in § 50.59(e).

The purpose of retaining these requirements is to ensure that no decommissioning activities can occur that result in: (1) Eliminating the potential for unrestricted release, (2) significant environmental impacts not previously considered in EISs, and (3) there no longer being reasonable assurance that adequate funds will be available for decommissioning. The basis for this final rule permitting the

use of § 50.59 activities to perform decommissioning activities is that environmental impacts have already been considered and that such consideration was for an unrestricted release condition where the licensee has sufficient funds to complete decommissioning (see final generic environmental impact statement (FGEIS), NUREG-0586).¹ The major considerations of licensee decommissioning activities that could significantly affect the environment are at the license termination stage when the licensee submits a license termination plan for approval.

If a licensee contemplates decommissioning activities that would violate these requirements, the licensee may not use the § 50.59 process delineated in this rule to perform the activities. The licensee would then be required to obtain a license amendment to perform the activities.

The final rule prohibits licensees from performing any decommissioning activities that foreclose release of the site for possible unrestricted use, result in significant environmental impacts not previously reviewed, or result in there no longer being reasonable assurance that adequate funds will be available for decommissioning (§ 50.82(a)(6)). Prior to the licensee's use of the § 50.59 process to perform major decommissioning activities, the PSDAR submittal and public information process must be completed. The licensee is required to include a discussion that provides the reasons for concluding that the environmental impacts that might occur during decommissioning activities have already been considered in site-specific or generic environmental impact statements, and to estimate the amount of funds necessary to complete decommissioning (see § 50.82(a)(4)).

The licensee is also required to submit a site-specific cost estimate within 2 years after permanent cessation of operations. Use of decommissioning trust funds are subject to the requirements (in § 50.82(a)(8)) that adequate funds will be available to ultimately release the site and terminate the license. Moreover, the final rule requires the licensee to notify the NRC in writing before performing any decommissioning activity inconsistent

with, or making any significant schedule change from, those actions and schedules described in the PSDAR and states that this notification include consideration of significant increases in decommissioning costs (§ 50.82(a)(7)).

The NRC intends to maintain an active inspection program to provide the requisite level of oversight of licensee activities during decommissioning. The PSDAR and any written notification of changes required of a licensee will be used to schedule NRC inspection resources for significant decommissioning activities.

In addition to continuing requirements that the licensee must comply with, such as 10 CFR part 20, regarding protection of workers and the public from radiation, and appendix B to 10 CFR part 50 regarding quality assurance, the final rule explicitly extends certain technical requirements to cover decommissioning activities (e.g., §§ 50.36, 50.36a, 50.36b, and Appendix I regarding technical specifications for surveillance requirements, administrative controls, control of effluents, and conditions to protect the environment). Thus, there will be a licensing basis appropriate to the activities undertaken using the § 50.59 process during decommissioning. By maintaining certain requirements throughout the decommissioning process, licensees will be able to use the existing § 50.59 process to perform decommissioning activities and thus provide comparable assurance that protection of the public health, safety, and the environment will not be compromised.

Issue 5—Environmental Impact Considerations During the Initial Phase of Decommissioning.

Comments. Many commenters in favor of the rule fully supported the environmental impact considerations delineated in the proposed rule for the PSDAR submittal, with no mandatory ER or subsequent EA requirement. A few commenters suggested that no environmental impacts for decommissioning need be addressed further because the FGEIS for the 1988 decommissioning rule (NUREG-0586, August 1988)¹ and subsequent environmental assessments (for various actual power reactor decommissioning situations) demonstrate that decontamination and dismantlement do not significantly affect the human environment and have beneficial effects in restoring the site to an environmentally acceptable condition. A few commenters suggested that decommissioning should be considered a categorical exclusion as defined in 10 CFR 51.22.

¹ NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," USNRC, August 1988. Copies are available for inspection or copying for a fee from the NRC Public Document Room 2120 L Street NW. (Lower Level), Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555-0001; telephone (202) 634-3273; fax (202) 634-3343.

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Most of the commenters who were not in favor of the rule believed that the NRC should define decommissioning as a major Federal action requiring an EA or EIS. They further indicated that a generic environmental impact statement cannot substitute for a site-specific EA because the FGEIS does not consider all possibilities. A few of these commenters further stated that the proposed environmental impact consideration process is NRC's attempt to streamline the process for utilities and deregulate NRC current requirements. A few commenters stated that the process outlined in the proposed rule abdicates NRC's responsibility to protect the health and safety of the workers, the public, the environment, and it also undermines citizen's due process.

Response. While the FGEIS (NUREG-0586)¹ for the 1988 decommissioning rule concluded that only minor negative environmental impacts would result from decommissioning in addition to substantial positive environmental impacts, it did not address site-specific situations that could differ from the assumptions used in the FGEIS analysis. However, it is expected that any site impacts will be minor. Any site impact should be bounded by the impacts evaluated by previous applicable GEISs as well as any site-specific EIS. To account for site-specific situations that may occur outside these environmental impact considerations, the final rule prohibits major decommissioning activities that could result in significant environmental impacts not previously reviewed. The review process for the PSDAR and the approval process for the license termination plan requires licensees to review the existing documents and address any discrepancies in their submittals.

The environmental assessment conducted for this rulemaking relied on the FGEIS for the decommissioning rule (NUREG-0586, August 1988)¹ and determined that, insofar as the rule would allow major decommissioning activities (dismantlement) to proceed without an environmental assessment, application of the rule will not have a significant impact on the environment. Although not required by NEPA, NRC has required in this final rule that licensees indicate in the PSDAR the reasons for concluding that the planned activities are bounded by the FGEIS and previous site-specific environmental impact statements. This requirement is consistent with one of the primary goals of the PSDAR process, which is to promote public knowledge and provide an opportunity to hear public views on decommissioning activities before licensees commence decommissioning.

At the license termination stage, the Commission must make decisions on the licensee-proposed actions described in the license termination plan. The Commission must consider:

- (1) The licensee's plan for assuring that adequate funds will be available for final site release,
- (2) Radiation release criteria for license termination, and
- (3) The adequacy of the final survey required to verify that these release criteria have been met.

Therefore, the NRC has determined that submittal of the license termination plan should be treated as a license amendment. In addition, under 10 CFR part 51, an environmental assessment or impact statement would be required at the time the license is amended. Following resolution of another ongoing NRC rulemaking activity that is considering adoption of radiological release criteria, a categorical exclusion may be adopted that would eliminate the requirement for an environmental assessment or impact analysis, except in the case of a restricted release of a site.

Issue 6—Public Participation.

Comment. Most commenters supporting the rule commented on the public participation aspects of the proposed rule. They believed that the participatory role given to the public was appropriate, excessive, or in need of further clarification. Several questioned the need for expanded public participation on matters of public health and safety because the NRC regulatory framework already provides for such participation (e.g., license amendment process). These commenters also noted that the purpose of the public meeting following the PSDAR submittal was not properly explained and that the final rule should clearly state that the meeting is intended for exchange of information only. Many commenters indicated that the NRC should limit the scope of these meetings and hearings to issues that are related to health and safety during the decommissioning process. These commenters also indicated that the supplementary information should include a clear statement of the purpose and participation guidelines for these meetings and clearly identify NRC's role at these meetings (which should be significant). A comment stated that it is essential that adequate mechanisms be developed for addressing issues of concern raised by members of the public and that, absent such closure, the meeting would only compound frustrations felt by the interested public. Finally, there was a comment that the 90-day waiting period (after the submittal of the PSDAR to the NRC)

before allowing licensees to undertake major decommissioning activities may not allow enough time for adequate public participation.

Most commenters who did not favor the rule believed that the public participatory role proposed was inadequate. These commenters stated that NRC should retain the possession-only license amendment (POLA) and decommissioning plan approval required in the current rule to truly enhance public participation. Public meetings were considered helpful, but no substitute for an adjudicatory hearing that includes the rights to discovery, to present evidence, and to cross examine. Along these lines, a commenter stated that a meeting does not afford citizens the level of institutional accountability necessary, given the dangers of environmental-toxic contamination inherent in reactor decommissioning activities and that citizens must have a substantive role in the decommissioning process in order to clarify, negotiate, and protect their community's interest. A few commenters suggested that site-specific advisory boards (SSABs) should be established early in the decommissioning process and that meaningful public involvement should be required at every stage of the decommissioning process, not only at the final termination stage.

Response. As discussed previously, initial decommissioning activities (dismantlement) are not significantly different from routine operational activities such as replacement or refurbishment. Because of the framework of regulatory provisions embodied in the licensing basis for the facility, these activities do not present significant safety issues for which an NRC decision would be warranted. Therefore, it is appropriate that the licensee be permitted to conduct these activities without the need for a license amendment. However, the information meetings will be beneficial in keeping the public informed of the licensee's decommissioning activities. Although the primary purpose of these meetings is to inform the public of the licensee's planned activities, the NRC will consider public health and safety comments raised by the public during the 90-day period before the licensee undertakes decommissioning activities.

A more formal public participation process is appropriate at the termination stage of decommissioning because the final disposition of the site is determined at that time. Under the current rule, the Commission issues an order permitting the reactor to be decommissioned, based on the approved decommissioning plan, which

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amends the license. NRC administrative procedures, in subpart G of 10 CFR part 2, now provide an opportunity for persons to request a hearing regarding the NRC's decision. A similar procedure will be followed in the final rule for the license termination plan once the licensee has permanently removed fuel from the site. However, the hearing will be less formal because it will follow the procedures in Subpart L of 10 CFR part 2. The role of the SSABs will be evaluated when the rulemaking regarding radiological release criteria for license termination is finalized.

Issue 7—Establishment and Use of the Decommissioning Trust Fund.

Most of the commenters on this issue were in favor of the rule. These commenters requested greater flexibility in what costs can be included in the fund, such as disposal costs of radioactive waste from plant operations, and greater flexibility in the use of the trust funds prior to and during decommissioning. Specific comments that reflect the full range of comments on financial issues are:

Comment a. The proposed § 50.82(a)(7) proposes to regulate a licensee's use of, and rate of withdrawal from, the decommissioning trust fund. While NRC oversight is warranted to ensure that decommissioning activities can be funded, regulating the rate of withdrawal from the trust fund may unnecessarily impede the efficiency of a licensee's decommissioning activities. Because the NRC's generic estimates of decommissioning costs are substantially lower than most recent site-specific cost estimates, licensees would be constrained to withdraw small fractions of an unrealistically low estimate.

Response. Limiting initial withdrawals to 23 percent of the generic cost estimate (using the § 50.75 requirements), until the licensee has submitted a site-specific decommissioning cost estimate, preserves the integrity of the decommissioning trust accounts. The final rule permits licensees to withdraw up to 3 percent of the generic formula amount for planning at any time during the decommissioning planning process, including planning that occurs while a plant is still operating. This amount should be ample based on current planning costs for licensees recently undergoing decommissioning. Likewise, allowing withdrawals of 20 percent of the generic amount for decommissioning activities would allow funding of certain activities before receipt of a site-specific cost estimate. This amount is consistent with costs of large component removal activities undertaken or contemplated by

licensees of shutdown plants (e.g., Yankee-Rowe and Trojan). Once the NRC has received the site-specific decommissioning cost estimate, a licensee would have access to the balance of trust fund monies for the remaining decommissioning activities. Because the timing of the submittal of a site-specific cost estimate is within the control of the licensee, the Commission believes that unwarranted restraints on access to funds are not imposed by the final rule.

Comment b. The scope of decommissioning-related activities that licensees may collect funds for should include disposal of low-level waste generated during operations, maintenance and storage of spent fuel after cessation of operations, costs to maintain an independent spent fuel storage installation, and non-radioactive demolition or "greenfield." State Public Service Commissions and the Federal Energy Regulatory Commission have authorized funding for these activities in some cases because it is in the best interests of the utilities' customers. The NRC regulation should not require segregation of these funds in separate accounts; restrictions on the withdrawal of trust funds in the proposed rule could lead utilities to create separate trust accounts for each nuclear facility funding component (e.g., decommissioning, spent fuel management, and greenfield). Finally, the rule should allow for the prudent and economic use, at the utility's discretion, of decommissioning trust funds during the years of normal plant operation even before end of life.

Response. The NRC's authority is limited to assuring that licensees adequately decommission their facilities with respect to cleanup and removal of radioactive material prior to license termination. Radiological activities that go beyond the scope of decommissioning, as defined in § 50.2, such as waste generated during operations or demolition costs for "greenfield" restoration, are not appropriate costs for inclusion in the decommissioning cost estimate. Funds for interim spent fuel storage and maintenance are addressed in § 50.54(bb).

The final rule does not prohibit licensees from having separate sub-accounts for other activities in the decommissioning trust fund if minimum amounts specified in the rule are maintained for radiological decommissioning.

Comment c. Section 50.82(a)(7)(ii) of the proposed rule specifies that a site-specific decommissioning cost estimate must be submitted to the NRC prior to

the licensee being *permitted* to use any funding in excess of previously stipulated amounts. This could be interpreted to mean that the NRC must approve the additional expenditures. If this paragraph is retained, the intent of this "permitting" should be made clear. Expenditures made in accordance with the PSDAR and the decommissioning cost estimate should not require any additional NRC authorization.

Response. The NRC's intent in the proposed rule was not to use a formal approval mechanism for decommissioning expenditures once the licensee submits its site-specific decommissioning cost estimate. The final rule has been modified as suggested by the commenter.

Comment d. More guidance should be provided regarding what constitutes a decommissioning "planning" expenditure. Changes in the proposed rule regarding expenditure of funds from the NRC Draft Policy Statement on use of decommissioning funds before decommissioning plan approval (59 FR 5216; February 3, 1994), should be more fully explained.

Response. The term "planning" used in § 50.82(a)(8)(ii) specifically means "paper" studies, not equipment removal. Percentages are used in the final rule rather than specific dollar amounts, as used in the Draft Policy Statement, to better allow for inflation of costs in the future. Other changes to the Draft Policy Statement are based on the response to comments, developed prior to this rulemaking activity, and presented in the section on the "Resolution of Comments on the Draft Policy Statement."

Comment e. If a plant shuts down early, not only will there be insufficient funds to pay for planned decommissioning (because not all payments will have been made), but the actual cost of decommissioning can be 2 to 3 times higher than planned. The NRC should require external funds in the amount necessary to complete decommissioning upfront. Moreover, the NRC does not have a procedure in place for "replacing" a reactor licensee that goes bankrupt. Finally, the NRC should specifically allow the total financial approach to be made along the lines of industry self-insurance.

Response. The revised regulations preserve the integrity of the decommissioning funds by tying the rate of expenditure to specific parts of the decommissioning process. At the same time they allow broad flexibility once a licensee submits its site-specific decommissioning cost estimate.

The issue of bankruptcy, as well as the requirement for power reactor

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licensees to have the total amount of decommissioning funds upfront, was considered during the development of the current rule and found to be adequately addressed in current requirements. Bankruptcy does not necessarily mean that a power reactor licensee will liquidate. To date, the NRC's experience with bankrupt power reactor licensees has been that they file under Chapter 11 of the Bankruptcy Code for reorganization, not liquidation (e.g., Public Service Company of New Hampshire, El Paso Electric Company, and Cajun Electric Cooperative). In these cases, bankrupt licensees have continued to provide adequate funds for safe operation and decommissioning, even as bondholders and stockholders suffered losses that were often severe. Because electric utilities typically provide an essential service in an exclusive franchise area, the NRC staff believes that, even in the unlikely case of a power reactor licensee liquidating, its service territory and obligations, including those for decommissioning, would revert to another entity without direct NRC intervention. However, the NRC believes that with electric utility deregulation becoming more likely, it may need to require additional decommissioning funding assurance for those licensees that are no longer able to collect full decommissioning costs in rates or set their own rates. Thus, the NRC proposed a rulemaking plan to, in part, evaluate these developments in SECY-95-223 (September 1, 1995).

Issue 8—Court decision.

Comment. Most commenters who were in favor of the rule indicated that the proposed rule did not conflict with the recent court decision regarding the Yankee Rowe decommissioning (*Citizens Awareness Network, Inc. v. NRC*, 59 F.3d 284 (1st Cir. 1995)). Most of the commenters who were not in favor of the rule believed that the proposed rule violated the court's decision, or the spirit of the decision, regarding Yankee Rowe.

Response. A significant basis for the court's decision was that it perceived that the Commission had not adequately provided the reasoning for the NRC decision to allow decommissioning activities before NRC approval of a licensee-submitted decommissioning plan (59 F.3d at 291-292), a decision that the court considered to be a modification of the Commission's decommissioning regulations. The court noted that the Commission had failed to provide either a rulemaking proceeding or a hearing to address what the court perceived to be NRC approvals of licensee decommissioning activities (59 F.3d at 291-92, 294-95). By initiation of

a notice of proposed rulemaking and solicitation of comment (July 20, 1995; 60 FR 37374), the Commission addressed the reasoning underlying the proposed decommissioning process and allowed public review and comment on that reasoning.

The final rule includes a public notice and meeting process, prompted by the licensee's submission of a report describing planned decommissioning activities, to hear public views before the licensee undertakes major decommissioning activities. This process specifically provides that licensees may not begin major decommissioning activities until after they have submitted a PSDAR. The PSDAR will be made available to the public for written comment and a public meeting will be held to hear public views. Finally, the licensee is required to submit a license termination plan before release of the site. The final rule specifies that the license termination plan be approved by the NRC through the license amendment process. This process provides the public with hearing opportunities and ensures that any hearing on that plan must be completed prior to release of the site. This procedural framework assures that those citizens living near the site, potentially for years or decades after the facility is shut down, will be provided with information regarding the licensee's planned decommissioning activities, have an opportunity to ask questions regarding those activities at a public meeting early in the process, and have timely input into the decision to release the site.

In its decision, the court also specifically addressed a concern about decommissioning activities taking place prior to any NEPA analysis (59 F.3d at 292-93). The final rule addresses this issue in several respects. First, the final rule explicitly prohibits the licensee from performing any major decommissioning activity that results in significant environmental impacts not previously reviewed or forecloses possible unrestricted release of the site.

Also, when the licensee submits the PSDAR, the licensee must specifically include a section discussing how the planned activities fit within the envelope of environmental effects included in either the FGEIS (NUREG-0586, August 1988)¹ or the facility's site-specific environmental impact statement. Moreover, the licensee must provide written notification if the intended decommissioning activities are inconsistent with the PSDAR. This requirement helps ensure that, after submittal and public comment on the PSDAR, any changes to the planned

decommissioning activities continue to be enveloped by the assessment of environmental impacts in prior environmental reviews. Any activities not meeting the environmental criteria would require the licensee to file an application for amendment to the license and a supplement to its environmental report under 10 CFR part 51. Finally, the rule requires a formal license termination plan by the licensee. The activities in the licensee's plan which do not meet the environmental criteria must be approved by the NRC by a license amendment that follows NRC procedures for amendments, including applicable hearing rights (under either subpart L or subpart G of 10 CFR part 2, as specified in the rule) and the preparation of environmental assessments.

The court perceived that the agency "approval" of the expenditure of funds from the decommissioning funds may be a basis for triggering both NEPA reviews and hearing rights (59 F.3d at 292-95). The final rule addresses this issue by providing generic guidance as to what expenditures can be made out of the decommissioning fund for decommissioning activities before submittal of a site-specific cost estimate. The revised regulations use generic criteria for expenditures from the decommissioning funds and do not require prior NRC approval of site-specific expenditures meeting the generic criteria (see § 50.82(a)(7)). These new provisions specifically require licensees to maintain sufficient funds for release of the site and termination of the license. The licensee will have to also include an updated, site-specific analysis of remaining costs in the license termination plan submittal.

In publishing this final rule, the Commission has explained the rationale for the new decommissioning process, and has concluded that nothing in the court decision dictates that the Commission take a specific approach to this issue or otherwise raises questions concerning the validity of the approach adopted in this rulemaking.

Issue 9—Definitions.

Comment. Regarding the definitions in § 50.2, a few commenters indicated that the definition of decommissioning should include the concept of restricted release to accommodate the proposed rulemaking on acceptable residual radioactive criteria for decommissioning. Several commenters noted that the definitions of "major radioactive components" and "major decommissioning activities" were unnecessary because the use of the existing § 50.59 process does not require these considerations and is adequate to

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deal with decommissioning activities. However, if a definition of "major radioactive components" must be kept, the definition should only be relevant to any components, that when dismantled for shipment, contain greater than class C waste. During decommissioning activities, these waste disposals have the greatest significance regarding environmental impacts and adequate funding and are unrelated to the physical size of components.

Response. When the residual radiation criteria rule is final, the definition of decommissioning in § 50.2 will address use of the restricted release. It is necessary to have definitions of "major radioactive components" and "major decommissioning activities" to clarify what decommissioning activities may not occur before the end of the 90-day waiting period. However, the definition of "major radioactive components" in the final rule has been clarified so that large components, other than those named, are not prohibited § 50.59 activities if they contain small amounts of radioactivity. Dismantlement of these components is considered part of routine operating nuclear power reactor activities.

Issue 10—Modifications to Specific Technical Requirements.

Comment. Most of the commenters addressing this issue were in favor of the rule and indicated that there should be additional elimination or modification of requirements beyond those presented in the proposed rule. There was a spectrum of views on this issue: if a risk analysis were performed, it would demonstrate that the proposed rule would impose unnecessary burden on NRC licensees and NRC resources without commensurate benefit to health and safety; appropriate technical specifications for decommissioning would be for those activities for which there is a significant hazard; the final rule should include a discussion of the logic (i.e., philosophy) in making conforming revisions to part 50, especially with respect to provisions that did not change (e.g., §§ 50.55a, 50.63, 50.72, and 50.73 applicability); the study and survey by the NRC concerning additional amendments for non-applicability should be completed before this rule is finalized (one commenter); and that the proposed rule appears geared to permanently shut down reactors with fuel onsite and does not differentiate among the aspects that apply once fuel is removed from the site, and the rule should consider such situations. Finally, one commenter requested that environmental qualifications remain in place for equipment important to safety

pertaining to spent fuel management and storage.

Response. This rulemaking is primarily directed toward the procedural process for decommissioning, with particular emphasis on premature closure situations. The modifications to technical requirements in the final rule are based on a consequence analysis that either leads to elimination of the requirement or extends its applicability to decommissioning.

The modifications to the technical requirements in the final rule are incomplete, as noted in the proposed rule, and as the information base continues to develop, additional rulemaking actions to modify other requirements will be conducted. In the interim, licensees that no longer have fuel onsite may continue to request exemption for specific requirements on a case-by-case basis. The information base will address the storage of high-density packaging of hot spent fuel in the spent fuel pool with special consideration given to potential radiological consequences that could occur from loss of coolant in the pool. Consideration for amending rule requirements is also being given to situations in which the fuel is in dry storage at an Independent Spent Fuel Storage Installation (ISFSI).

Comments on specific amendments were:

Comment: Part 26. The final rule should explicitly state that the fitness for duty program does not apply to a permanently shut down and defueled facility. If it must apply, then it should apply to persons with unescorted access to the fuel storage building or buildings containing equipment necessary for the safe storage and handling of spent fuel.

Response. Consideration of this issue is ongoing and may result in future rulemaking. However, until a decision is made, part 26 continues to be applicable.

Comment: Section 50.36. Criteria are needed to ensure that technical specifications are appropriate for the conditions of a plant in a defueled state. The four criteria specified in § 50.59(e) would be appropriate additional guidance.

Response. Consideration will be given at a later time to the development of additional guidance in the form of standardized technical specifications for decommissioning. However, licensees may apply for modification of their technical specifications on a case-by-case basis.

Comment: Section 50.36 (c)(6) and (e). These requirements, which appear to imply that a new set of technical

specifications will be developed for the plant decommissioning phase, are redundant and should be eliminated because § 50.51(b)(2), the requirement to conduct activities in accordance with the specific part 50 license for the facility, is sufficient to ensure effectiveness of the technical specifications.

Response. As a reactor facility transitions from operational to decommissioning status, numerous changes to technical specifications are expected. The regulatory experience with revisions to the technical specifications during this transition period has entailed case-specific evaluations of individual licensee requests. This has resulted in some inconsistency and variability of expectations among shutdown reactor facility license requirements. This revision provides the basis for developing a consistent framework for the development of "standardized technical specifications for decommissioning," as well as addresses the uncertainty regarding the applicability of the existing regulation to permanently shutdown reactors. Section 50.51 specifically addresses the continued effectiveness of expired licenses and limitation of licensee actions during any continued effectiveness period. As such, § 50.51 does not, nor is it intended to, provide specific license conditions and requirements. Section 50.36 addresses this issue.

Comment: Section 50.36(a)(1). This requirement should be clarified and revised because radioactive waste systems will have to be removed prior to license termination, and the present wording appears to require that these systems be used and maintained. Moreover, temporary systems are typically used for effluent treatment and the rule should be modified to describe only those systems that are appropriate.

Response. Section 50.36(a)(1) is intended to ensure that operating procedures for any waste treatment systems used to control effluents be maintained and used to existing release criteria, and not that the systems be used and maintained when no longer necessary. However, in response to the comment, § 50.36(a)(1) has been modified from the proposed rule so that systems that are no longer necessary can be eliminated from compliance requirements.

Comment: Section 50.47. A defueled plant that has ceased operation warrants a material reduction in the scope of its offsite emergency planning requirements because the credibility of any offsite consequences are reduced.

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Beyond the spent fuel pool, there is not sufficient source term to justify emergency plans. This also pertains to appendix E to part 50 and the requirements in § 50.54(t) concerning periodic review (frequency and scope) of the licensee's emergency preparedness program.

Response. Consideration of the potential radiological consequences of hot, high-density packaged fuel in the spent fuel pool is still ongoing. Modifications to this requirement, if made, will be developed at a later time.

Comment: Section 50.48. While some commenters agreed with the concept of a fire protection plan through the end of decommissioning, one found the proposed language overly restrictive, vague, and ambiguous. This commenter stated that once the permanently removed spent fuel is certified to no longer be a fire protection concern, an industrial fire protection program could be adequate in most cases. Several other commenters noted that there are other ongoing NRC activities to improve current fire protection regulations, and if actions are taken now, they should only be based on "significant hazards" considerations.

Response. These modified requirements have been coordinated with ongoing NRC activities regarding the improvement of fire protection regulations. Also, see the response to § 50.47 regarding spent fuel considerations. As presently configured, fire protection regulations apply only to operating reactor facilities. The need for an ongoing fire protection program, albeit a modified one, remains after the facility has ceased reactor operations. The final rule provides a performance-based program that can readily be modified during the decommissioning process to address residual hazards.

Comment: Section 50.49. Electric equipment required for protection of spent fuel outside the reactor does not meet the definition of equipment defined by § 50.49(b). The discussion in the final rule should be corrected to note that the environmental qualifications regulations apply to selected safety and non-safety related equipment as described in § 50.49(b).

Response. No modifications to the proposed rule are necessary. However, the environmental qualifications regulations apply to selected safety and non-safety related equipment as described in § 50.49(b).

Comment: Section 50.51. Section 50.51(b) should be deleted because it is redundant. If it is kept, the requirements on the continuation of a license should be clarified to affirm that other operating reactors would be unaffected

when the operating license of one reactor has been terminated at a multi-reactor site. Section 50.51(b)(1) should be clarified to indicate that, at sites that have an intervening reuse but do not require decontamination to unrestricted release, decontamination would not need to occur until the end of the reuse period.

Response. Section 50.51(b) is not redundant and will not be deleted. This section in the final rule has been modified to clarify that an expired license for a nuclear reactor facility that has permanently ceased operations is not terminated until the Commission terminates it. This provision further clarifies what conditions prevail under such circumstances. At a multi-reactor site, each reactor is individually licensed and actions are applied accordingly. The final rule addressing the radiological criteria for decommissioning will address the issue of restricted release options. Under the proposed rule, such restrictions would have to ensure that members of the public, in the event the restrictions fail, would not receive a dose in excess of 100 mrem per year. Unless the facility remained under license, individuals having access to the facility would be considered members of the public.

Comment: Section 50.54(g). The antitrust law requirements for a reactor that has permanently ceased operations and permanently defueled should be reevaluated for applicability.

Response. Section 50.54(g) simply provides that the issuance of an NRC license does not relieve the licensee from compliance with the antitrust laws specified in Section 105 of the Atomic Energy Act, and that the NRC may take appropriate action, including suspension or revocation of the license, if a court finds the licensee to have violated any provisions of such antitrust laws. This subsection of the regulation is sufficiently flexible that there is no reason to modify or delete it with respect to a facility that has ceased operations or is permanently defueled.

Comment: Paragraphs (k), (l), and (m) of § 50.54. The requirement for licensed operators should be eliminated or reduced because reactivity changes can only occur during the initial stages of decommissioning in connection with repositioning fuel assemblies in the spent fuel pool. With reference to § 50.54(i), the scope of the operator requalification program and limitations on a licensee's freedom to modify it should be reduced at facilities undergoing decommissioning.

Response. Consideration of these issues is ongoing and may result in future rulemaking.

Comment: Section 50.54(w). Onsite property damage insurance for a facility undergoing decommissioning should be eliminated or substantially modified.

Response. Consideration of the potential radiological consequences of hot, high-density packaged fuel in the spent fuel pool is still ongoing. Modifications to this requirement, if made, will be developed at a later time.

Comment: Section 50.55a. Pertaining to codes and standards requirements, it should be noted that §§ 50.55a (a), (f), and (g), inservice testing requirements, do not apply to permanently defueled reactors because the plant is not operating and there is no need to apply the regulation.

Response. No change is necessary because these requirements provide assurance that relevant portions of the facility are maintained functional or operational to adequate standards so they are operationally capable.

Comment: Section 50.63. The requirements on the loss of all ac power should not apply to decommissioning because the potential for significant radiological consequences is very low (there is a low probability of incident and long recovery time).

Response. Consideration of the potential radiological consequences of hot, high-density packaged fuel in the spent fuel pool is still ongoing. Modifications to this requirement, if made, will be developed at a later time.

Comment: Section 50.65. Monitoring maintenance for a permanently shutdown and defueled facility on any of its structures, systems, or components (SSC) to levels required by the current maintenance rule is unnecessary. Permanently shutdown and defueled facilities can no longer experience the levels of mechanical stresses associated with an operating plant. Therefore, the industry interprets the proposed rule to mean that the maintenance program only applies to the safe storage of fuel. The relative risks from a shutdown plant allow requirements in existing technical specifications and other administrative programs to provide adequate assurance for safe fuel storage.

Response. The maintenance rule, § 50.65, requires that the performance or condition of all structures, systems, and components (SSCs) described in § 50.65(b) be included in the scope of the rule. Under the current rule, licensees are permitted flexibility in the goals that are established and the monitoring that is performed for these SSCs. The NRC agrees that the stresses on most SSCs in an operating plant are greater than those associated with a shutdown and defueled plant. The final rule allows the scope to be limited to

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those SSCs associated with the storage, control, and maintenance of spent fuel in a safe condition in a manner that provides reasonable assurance that the SSCs are capable of performing their intended function.

Comment: Section 50.72. The immediate notification requirements for operating nuclear power reactors should not apply to permanently defueled reactors or, if applicable, should be significantly modified. Regarding § 50.72(a)(i), there should be no requirement to use the Emergency Notification System or Emergency Response Data Systems.

Response. The NRC did not adopt this comment. Notification requirements for events such as abnormal releases and overexposures are examples of required reports that are necessary.

Comment: Section 50.111. Criminal penalties should not be imposed for decommissioning activities because they are not so important to public health and safety that licensees need be subject to them. Decommissioning activities for reactor licensees should not be treated any differently than for other radioactive material licensees.

Response. The Commission believes that certain actions are essential in initiating the decommissioning process (e.g., certifying to permanent cessation of operation and permanent removal of fuel from the reactor vessel, and submitting a PSDAR) and should, therefore, be treated as substantive with respect to the criminal penalty provisions of the Atomic Energy Act. Decommissioning actions, when initiated improperly, have a potential for significant consequences regarding health, safety, and the environment. Willful violations of, attempted violations of, or conspiracy to violate, § 50.82 would, therefore, be a matter of significant concern to the NRC. Thus, the NRC is retaining the addition of § 50.82 to the list of regulations to which criminal sanctions apply.

Comment: Section 140.11. Concerning Price Anderson financial protection, permanently shutdown and defueled facility licensees should be permitted to withdraw from the secondary financial protection layer, and single units should be given a reduction in the primary level of coverage (e.g., \$100,000,000).

Response. Consideration of the potential radiological consequences of hot, high-density packaged fuel in the spent fuel pool is still ongoing. Modifications to this requirement, if made, will be developed at a later time, as will considerations of fuel stored in an ISFSI.

Issue 10—Termination of License Requirements.

Most of the commenters in favor of the rule supported the decommissioning requirements for termination of the license in the proposed rule. However, several of these commenters stated that approval of the license termination plan should not require an amendment or opportunity for a hearing. They believe that if the plan is made available for public comment, existing regulations provide ample opportunity for public participation and the AEA does not require a hearing. Another commenter noted that once the spent fuel is off the site, the hazard is reduced so there is no safety, technical, or legal basis for NRC approval of a detailed decommissioning plan or PSDAR. A commenter pointed out that the use of the proposed § 50.59, which includes the four criteria (§ 50.59(e)), addresses the unique circumstances associated with the decommissioning activities. If some activities do not satisfy the requirements of § 50.59 and a license amendment is required, interested parties would have an opportunity to request a hearing. The approval of the plan by amendment and the opportunity for a hearing are not for reasons of health and safety; moreover, any interested party could always petition for a hearing under § 2.206. Another commenter made similar comments and went even further in stating that if standards for radioactive release are clear, meeting the objective of terminating the license should be easily demonstrated without the need for approval of a plan or license amendment; and that the plan should be available to the NRC for information only.

Response. The requirement for submittal of a termination plan is retained in the final rule because the NRC must make decisions, required in the current rule on the decommissioning plan, regarding (1) the licensee's plan for assuring that adequate funds will be available for final site release; (2) radiation release criteria for license termination, and (3) adequacy of the final survey required to verify that these release criteria have been met. A public meeting is considered necessary at the license termination stage to inform the public about the licensee's proposed termination activities and to provide an opportunity for public comment on those proposed activities. The NRC has also made the determination that license termination is an action of sufficient significance as to warrant an opportunity for a public hearing on NRC's decision regarding the licensee's proposed termination activities.

Specific comments concerning the license termination plan were provided by several commenters.

Comment a. The timing of the license termination plan is not explicit in the proposed rule, § 50.82(a)(8), and it is not clear whether the rule permits dismantlement activities before submittal or approval of the license termination plan.

Response. The final rule permits dismantlement activities 90 days after PSDAR submittal unless the NRC interposes an objection. The license termination plan must be submitted within 2 years of the licensee's expected date of license termination (the date specified in the PSDAR or supplement).

Comment b. The NRC does not explain or support the need for the elements of the plan, discussed in proposed § 50.82(a)(8)(ii) (A)–(G). The current rule, under § 50.82(d), simply requires updated, detailed plans before the start of decommissioning.

Response. The final rule permits major decommissioning activities (dismantlement) to be performed using the § 50.59 process. Because a decommissioning plan is no longer required, the requirements for the license termination plan are less complex than those that are currently required for a decommissioning plan. The license termination plan provides documentation on the remaining activities necessary to terminate the license and includes consideration of remediation aspects that could involve license termination under either unrestricted or restricted release conditions (once the rulemaking on acceptable residual release criteria is final). The site characterization, description of the remaining dismantlement activities and plans for site remediation are necessary for the NRC to be sure that the licensee will have adequate funds to complete decommissioning and that the appropriate actions will be completed by the licensee to ensure that the public health and safety will be protected. The language of § 50.82(8)(a)(ii) (B) and (F) in the proposed rule, now § 50.82(a)(9)(ii) (B) and (F) in the final rule, has been changed to more clearly reflect the intent of these requirements. Thus, element (A) now requires *identification* of remaining dismantlement activities, and element (F) now requires an updated site-specific *estimate* of remaining decommissioning costs.

Comment c. One commenter questioned how multiple sites will be addressed. Another commenter stated that a single license termination plan

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should be encouraged for multi-reactor sites.

Response. Reactors at a multi-reactor site are individually licensed and licensing actions are applied to the individual licenses. A licensee would not be prohibited from submitting a single license termination plan for the multi-reactor site, but the NRC would address terminating each license separately.

Issue 11—License Termination:
Additional comments.

Comment. A commenter stated that the need for a hearing when the licensee submits the license termination plan for approval should be reconsidered. If the licensee meets the requirements of the termination plan and applicable regulations, there would be no issues to adjudicate. Another commenter stated that, concerning the subpart L proceedings, the NRC should issue a clear statement of policy to eliminate the potential for significant litigation. Several commenters stated that if subpart L is to be used for hearings, it appears necessary to change the title of subpart L to include Part 50 licensees. Finally, a commenter stated that the applicability of Subpart L hearings should be incorporated into § 2.700 as well as § 2.1201.

Response. With respect to the termination plan, the Commission recognizes that ongoing rulemaking proceedings may result in establishing criteria for the restricted release of sites. Even if a hearing is not legally mandated at the termination stage as argued by some commenters, the Commission views it as appropriate to use the amendment process for approval of termination plans, including the associated opportunity for a hearing, to allow public participation on the specific actions required for license termination. In particular, the Commission has determined that, if a hearing is requested on the termination plan, the hearing must be completed before release of the site. This action will help ensure meaningful public input on any proposal for restricted release of the site. Given that a lengthy period (up to 60 years) may pass between the PSDAR stage and the termination stage, and given that final release criteria are still being developed that may include restricted release of a site, the Commission views a license amendment process as appropriate, along with the associated opportunity for a hearing, whether or not such hearings are mandated by legislation. Finally, the changes proposed by the commenters concerning the change of title of subpart L to include part 50 licensees and the incorporation of

subpart L applicability into §§ 2.700 and 2.1201 are unnecessary because the rule already addresses these considerations.

Comment. Many commenters expressed confusion on when a subpart L or subpart G hearing would be appropriate. One commenter noted that once fuel is out of the reactor vessel and in dry storage, there is no difference between storage on or off site and that reference to the subpart G hearing should be deleted. Another commenter wanted a clarification of what is meant by removing fuel from the site (i.e., under a part 72 license). Another commenter suggested that the wording to § 2.1201(a)(3) be clarified concerning permanent removal of fuel from the site to an authorized facility. One commenter inquired as to whether a license could be terminated if the licensee removed the fuel to an onsite ISFSI.

Response. The final rule clearly indicates that once the fuel is removed from the licensed part 50 facility the power reactor facility can be treated as a materials facility where a subpart L hearing is appropriate. If fuel remains at the facility, a subpart G hearing is appropriate. If the fuel is in an ISFSI, that part of the affected site is regulated under a part 72 license and would no longer be regulated under the part 50 license. The wording in § 2.1201(a)(3) has been changed to “removal of fuel from the part 50 facility,” rather than “from the site,” and means either removal offsite to an authorized facility or to an onsite facility (ISFSI) not under the part 50 license.

Comment. Many commenters did not see the need for an environmental review at the license termination stage, and one suggested that it be considered a categorical exclusion. Another commenter stated that if there were to be an environmental review, its scope should be restricted to whether the licensee’s controls and methods for mitigation of radiation will meet the standards adopted in § 20.1405 of the proposed residual radiation criteria rule.

Response. At the license termination stage, an environmental assessment or impact statement will be required when the license is amended. Following resolution of another ongoing NRC rulemaking activity that is considering adoption of radiological release criteria, a categorical exclusion may be adopted that would eliminate the requirement for an environmental assessment or impact analysis, except in the case of a restricted release of a site.

Comment. A few comments addressed proposed changes to § 51.53 concerning requirements for environmental impact considerations. One commenter stated

that the first sentence of the first paragraph of § 51.53(b) should be deleted to be consistent with the concept that “a license amendment authorizing decommissioning activities” is no longer required. Revised wording should begin with “each applicant for a license amendment approving a license termination plan or decommissioning plan.” Another commenter stated that § 51.53 should be revised to reflect the fact that the proposed rule, if adopted, would not require an amendment that authorizes the conduct of decommissioning activities, because neither the existing nor the proposed decommissioning process requires a license amendment to approve a decommissioning plan. Therefore the first paragraph of this section should be reworded as “[E]ach applicant for license termination upon submittal of the license termination plan under § 50.82 of this chapter either for unrestricted use or based on continuing use restrictions applicable to the site, * * * shall submit * * *.” A similar change was stated to be needed in § 51.95 for the same reasons. Finally, a commenter noted that § 51.53(b) as well as § 51.95(b) refer to “applicants * * * for a utilization facility,” which does not seem to be an element of the proposed rule and should be deleted; also, § 51.95(b) does not mention approval of a license amendment for license termination or a decommissioning plan, which is an omission and should be consistent with § 51.53(b).

Response. No change was made to this section because the non-power reactor facilities are still required to submit a decommissioning plan. For non-power reactors, the current rule remains essentially unchanged and requires submittal of a decommissioning plan that is approved through license amendment. The non-power reactor licensee must also submit an appropriate supplemental environmental report and the NRC must do an EA as part of the decommissioning plan approval process.

Comment. Most of the commenters who were not in favor of the rule supported the license termination phase requirements but believe that these requirements were not timely and should be implemented in some manner at the initiation phase of decommissioning.

Response. During the initial phase of decommissioning, the requirements in the final rule are designed to provide oversight commensurate with the level of safety concerns experienced in decommissioning, while providing

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additional opportunity for public comment on the licensee's proposed activities. The final rule requirements are based on NRC's experience with licensees' use of the § 50.59 process during operations and consideration of the types of activities that licensees would undertake during the decommissioning process. Where appropriate, licensing requirements are continued through decommissioning and the NRC is informed of each licensee's planned decommissioning activities. (Additional discussion can be found in the response to Comment 5).

Issue 12—Regulatory Guides.

Comment. Several commenters requested regulatory guidance in the form of regulatory guides. These requests pertained to a standard format and content for the PSDAR and license termination plan as well as to transition guidance for licensees who are shut down and choose to adopt the new process. Additional guidance was also requested for a regulatory guide that dealt with the decommissioning process, such as a revision to Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors," that would include such topics as the objective and implementation aspects of public meeting and hearings, guidance on issues the NRC would consider in not giving negative consent approval to the PSDAR after the 90-day waiting period, guidance on interpretation and development of technical rule requirements, and guidance, on the particulars of "grandfathering." Additionally, several commenters requested additional financial guidance, through a regulatory guide, on the development and use of the decommissioning trust fund.

Response. The NRC intends to issue regulatory guidance on the initial phase of decommissioning. Guidance on the standard format and content of the PSDAR will be issued after the final rule is published. Other guidance on the license termination phase is also being developed.

Issue 13—Elimination of the Possession-only License Amendment (POLA).

Comment. Generally, commenters in favor of the rule agreed with eliminating the POLA. Objections to POLA elimination from other commenters were that distinct categories between reactor operation and cessation of operation should be maintained and that eliminating the POLA process would eliminate a hearing opportunity prior to reactor decommissioning. Reflecting the views of many commenters against POLA elimination, a State commenter said that by deleting

the POLA the NRC would eliminate the amendment process that expressly provides for State consultation (§ 50.91(b)) and that no subpart G hearing process would occur that would allow for discovery by parties to the proceeding and provide a mechanism for intervention. The State commenter held that the proposed rule delays the need for amendment to the license termination stage when it is too late; it is needed before major decommissioning activities are undertaken. Moreover, at the license termination stage, only a subpart L hearing is proposed (no discovery). Finally, a few commenters asked why non-power reactors, which are less hazardous facilities (smaller and less contaminated), can still request a POLA and still require decommissioning plan approval while power reactors no longer have this option or requirement.

Response. If fuel is removed from the licensed part 50 facility, the activities undertaken during decommissioning are more like the kinds of activities undertaken at a typical materials facility where the subpart L process applies. The final rule requires that certain procedures be satisfied before a licensee can perform major decommissioning activities. These procedures include requiring a PSDAR submittal, conducting a public meeting, and allowing a specified time period for NRC review of the licensee's intended actions. Other final rule requirements prohibit the licensee from performing any major decommissioning activity that could result in significant environmental impacts not previously reviewed or foreclose the release of the site for unrestricted use. Written notification to the NRC is required for licensee decommissioning activities that are inconsistent with those described in the PSDAR, including significant changes in decommissioning costs. Finally, the final rule extends certain regulatory requirements to decommissioning. Thus, licensee activities that would require approval under a POLA are no longer necessary. The affected State(s) will be notified about the public information meeting as well as consulted on the licensee's planned decommissioning activities by the NRC prior to the public meeting. The final rule requires that a copy of the PSDAR and any written notification of inconsistent PSDAR activities be sent to the affected State(s). In response to the comment concerning why non-power reactors are still given the option of submitting a POLA and still require a decommissioning plan, it is noted that such reactors are required to

immediately dismantle, except for extenuating circumstances, and are not permitted a storage period (because there is no significant health, safety or environmental reason for delay—see FGEIS, NUREG 0586).¹

Issue 14—"Grandfathering" Considerations.

Comment. There were several commenters who were concerned that the proposed rule did not significantly address nor provide necessary guidance for "grandfathering" issues. Specific comments in this area were that recognition should be given to those plants whose decommissioning plans have been approved on a case-by-case basis; that if existing facilities are grandfathered from any part of the proposed rule, it should clearly identify this; that the proposed rule does not adequately implement the grandfathering option because the current § 50.82 would disappear from the rule and no explicit provisions would exist to rely on. It is suggested that the NRC keep the old provision as well as an applicable alternative and; that for grandfathering, an implementation provision should be added to the rule in a fashion similar to § 20.1008. Several commenters also noted that guidance needs to be given to those licensees who are in various aspects of decommissioning based on the current rule requirements and wish to switch to the proposed rule requirements.

Response. The Commission has reconsidered the issue of "grandfathering" and modified the language in the final rule to provide more specific guidance for nuclear power reactor licensees whose facilities are currently at certain stages of decommissioning. The Commission has decided to eliminate the provision in the proposed rule that would give those licensees that have an NRC approved decommissioning plan, before the date when a final rule became effective, the option of either complying with the final rule requirements or continuing with the requirements of the currently existing rule. All licensees will be required to comply with the decommissioning procedures specified in the provisions of the final rule, when it becomes effective. The final rule addresses the process for converting from the existing rule requirements to those in the final rule for those nuclear power reactor licensees whose facilities are already at certain stages of decommissioning.

For power reactor licensees who, before the effective date of this final rule, either submitted a decommissioning plan for approval or

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possess an approved plan, the plan will be considered as the PSDAR submittal and the licensee will be required to perform decommissioning in conformance with these final rule requirements. However, for power reactor licensees who are involved in subpart G hearings of 10 CFR part 2, conversion to the new rule will not be permitted until the hearing process is completed. The public meeting and 90-day hold on decommissioning activities required in § 50.82(a) (4)(ii) and (5) will not apply. Those licensees will be subject to any orders arising from these subpart G hearings, absent any orders from the Commission.

For nuclear power reactor facility licensees whose licenses have been modified, before the effective date of this rule, to allow possession but not operation of the facility, the certifications required in § 50.82(a)(1) will be considered to have been submitted.

With regard to extending current rule requirements for "grandfathering" considerations, no current rule requirements need be retained because the "grandfathering" provision in the proposed rule has been eliminated in the final rule. The final rule covers conversion from the existing requirements for approval of a submitted or approved decommissioning plan, as described above, and is specific to existing licensee decommissioning plan situations.

Issue 15—Miscellaneous Comments.

Comment. Several commenters stated that the backfit rule, § 50.109, should apply to decommissioning because a proper reading of the intent of that rule should cover rulemaking dealing with decommissioning. Otherwise, additional requirements could be imposed without a benefit cost analysis.

Response. The Commission has concluded that the provisions addressed in this rulemaking do not involve a backfit because they address only reactors that have permanently ceased operations and § 50.109 only applies to design, construction and operation of a facility. These regulations are primarily procedural in nature and, to the extent they address nonprocedural matters, they are a codification of existing process.

Comment. A few commenters noted that the regulatory analysis for the proposed rule did not evaluate the alternatives to the proposed new regulatory requirements and existing requirements do not require a license termination plan or a license amendment to approve a license termination plan. The regulatory

analysis does not accomplish the objective of ensuring that all regulatory burdens are needed, justified, and minimal.

Response. The regulatory analysis did evaluate the alternatives to the proposed new regulatory requirements. The license termination plan is not a new requirement because, under the existing rule, licensees are required to submit a proposed decommissioning plan for approval within 2 years of permanent shutdown. Currently, licensees who plan to delay decommissioning by including a period of storage must submit a final decommissioning plan for approval before starting decommissioning. Current NRC policy is to approve the decommissioning plan by license amendment. Because the proposed rule would permit the licensee use of the § 50.59 process to perform major dismantlement activities, the license termination plan is less complex than a decommissioning plan and covers the remainder of activities requiring completion to terminate the license, other than dismantlement activities. The changes adopted in the rulemaking primarily provide additional flexibility to licensees that reduces burden without reducing safety by allowing licensees to undertake the majority of decommissioning activities without first obtaining NRC approval.

Comment. Several commenters wanted the option of entombment to be allowed because restricted release will be allowed when the residual radiation criteria rule is final. Aside from the difficulty of disposal, the money not spent on LLW burial is substantial. The interest on this money would be more than adequate to provide for the maintenance and surveillance required for the entombment option. The public, including local communities, may be interested in not transporting waste across state boundaries and in keeping funds that would otherwise be spent on disposal within the community.

Response. The issue of entombment was not addressed in this rule. The NRC position on entombment is the same as in the current rule. Entombment would only be permitted for very special circumstances but would involve a continued license on a case-by-case basis. The concept of restricted release included in the proposed rule on residual radiation criteria would involve termination of the license with restrictions in place to limit the use of the facility by the public, but certain radiological criteria for restricted release would have to be met.

Comment. Several individual commenters wanted to know whether NRC rules allow the optional period of

storage of the reactor facility to be longer than 60 years and does the 60-year completion date for decommissioning specified in the current rule consider storage of fuel in an ISFSI. One commenter stressed that spent fuel should not be separated from any of the phases of decommissioning because this is a piecemeal approach and inappropriate. Another commenter stated that the licensee should be required to maintain capability to handle the fuel for dry cask storage.

Response. The primary considerations of the proposed rule were procedural, with emphasis on the issue of premature closure. Other aspects of the existing rule were unchanged. A 60-year period for completion of decommissioning is still imposed, subject to other considerations delineated in the current rule requirements. The existing rule, as well as the proposed rule, consider the storage and maintenance of spent fuel as an operational consideration and provide separate part 50 requirements for this purpose. Regarding maintaining the capability to handle the fuel for dry cask storage, these requirements are maintained in 10 CFR part 72.

Comment. Several commenters noted that the requirements of this proposed rule and the proposed residual radiological criteria rule should be coordinated to avoid redundancy.

Response. The two rules will be coordinated.

Comment. A few commenters noted that a complete site characterization should be included at the initiation of decommissioning activities and that mandatory site radiological surveys should be required before issuing a new license to establish background conditions.

Response. These considerations are being addressed during finalization of the residual radiological criteria rule.

Comment. Finally, several commenters requested that the NRC consider the impacts of the proposed "safeguards for nuclear fuel or high level radioactive waste" rule (60 FR 42079; August 15, 1995) (which affects parts 60, 72, 73, and 75) on this rule when that proposed rule is issued in final form.

Response. This rule is primarily directed toward the procedural requirements necessary for power reactor decommissionings. Therefore, the requirements imposed by this rule can be treated independently from the other "safeguards" rule under development. That rule, when final, may modify some of the technical requirements imposed by this final rule.

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Resolution of Comments on the Draft Policy Statement

On February 3, 1994 (59 FR 5216), the NRC published in the **Federal Register** a draft policy statement and accompanying criteria relating to power reactor licensee use of decommissioning trust funds before NRC approval of licensees' decommissioning plans. The proposed rulemaking to amend the procedural aspects of decommissioning (60 FR 2210; July 20, 1995) codified the position embodied in the draft policy statement. Based on the NRC's resolution of comments on the proposed rule and incorporated into this final rule, the criteria in the draft policy statement have been modified. No final policy statement will be issued. Other changes in the final rule pertaining to licensee use of decommissioning trust funds were discussed earlier in the section on Response to Comments.

The NRC received comments on the draft policy statement from the following individuals or organizations:

1. Michigan Department of Commerce
2. Citizens Awareness Network
3. Mary P. Sinclair
4. Detroit Edison Company
5. Committee for a Safe Energy Future
6. Jon Block
7. Nuclear Energy Institute
8. Yankee Atomic Electric Company
9. Virginia Power Company
10. New England Coalition on Nuclear Pollution
11. Winston & Strawn
12. Consolidated Edison Company
13. Maryland Department of the Environment
14. TU Electric Company

The public interest group, individual commenters, and one State oppose allowing any withdrawals from decommissioning trust funds before the NRC approves a licensee's decommissioning plan, a procedure that this final rule has discontinued. The other commenters generally supported the draft policy statement, although they disagreed with certain provisions or took issue with the need for it. Specific comments and observations, and the NRC analysis of and response to them, are discussed below.

Specific Comments

Comment 1. The trust agreements may need to be modified to include low-level radioactive waste storage and disposal (LLW) and interim spent fuel storage as allowable decommissioning costs when these costs are incurred as part of additional, temporary facilities at particular sites. LLW disposal costs, in particular, should be able to be paid from the decommissioning waste fund

without waiting 60 days for NRC approval. Provisions should be included for decommissioning nonradioactive structures associated with the reactor (Commenters 1 and 4).

Response. The policy statement and this rule were not intended to address this issue. This issue is being addressed separately (see SECY 95-223; September 1, 1995). As provided in 10 CFR 50.75, financial assurance for decommissioning includes the cost of disposal of LLW associated with reactor decommissioning. If a temporary facility is built to store LLW under the Part 50 reactor license, the trust agreement should have been structured to include these costs. Although the NRC definition of decommissioning excludes interim storage of spent reactor fuel, a licensee is required to provide for the cost of interim spent fuel storage under 10 CFR 50.54(bb).

With respect to the issue of waiving the 60-day NRC approval period for withdrawals to pay for LLW shipments, this final rule eliminates the procedure to which this comment referred.

Comment 2. The NRC should not allow decommissioning trust fund withdrawals before an environmental assessment is performed while the reactor licensee has a possession-only license because: (1) It will allow large-scale decommissioning activities without a resident NRC inspector on-site during the removal of irradiated components; (2) it is inconsistent with the mandate of the NRC, which is to implement a submitted, reviewed, publicly evaluated, and approved decommissioning plan before large-scale decommissioning activities begin; (3) health and safety of the workers and the public can not be adequately served by the experimental process of the component removal process, and (4) existing NRC regulations state that a licensee may only conduct limited activities prior to approval of the decommissioning plan (e.g., decontamination, minor component disassembly, shipment and storage of spent fuel). Reasonable interpretation of the rules does not require expansion of 10 CFR 50.59 and/or activities permitted under a license (Commenters 2, 3, 5, 6, and 10).

There could be insufficient financial resources remaining to decommission Nuclear Power Plants thus, creating a potential burden on the State and, serious impairment of radioactive material licensee's ability to complete decommissioning. Most existing decommissioning 'certifications and funding plans' are generally acknowledged by the NRC to already be severely UNDERFUNDED. This rule would exacerbate that situation (Commenter 13).

Response. This final rule addresses the process that licensees are to use for post-shutdown decommissioning activities, as well as the limits on the amounts to be withdrawn from decommissioning trust funds.

By permitting a licensee to perform certain decommissioning activities and to withdraw funds for those activities through use of the PSDAR submittal process required in the final rule will allow the licensee to reduce its overall decommissioning costs by taking advantage of lower low-level radioactive waste disposal costs. This will benefit the licensee and its ratepayers without adversely affecting public health and safety.

Comment 3. The NRC should develop a similar policy for operating plants and should allow licensees to withdraw decommissioning trust funds to dispose of structures and equipment no longer being used for operating plants (Commenters 7, 8 (by reference), and 14).

Footnote 2 of the policy statement should be revised to clarify that the policy statement does not apply "to licensee withdrawals from decommissioning funds for operating plants" rather than stating that the policy statement does not apply "to licensees with operating nuclear reactors" (Commenter 11).

Response. The NRC has concluded that allowing decommissioning trust fund withdrawals for disposals by nuclear power plants that continue to operate is not warranted. These activities are more appropriately considered operating activities and should be financed in that way.

Footnote 2 is not included in this final rule.

Comment 4. The policy statement may become obsolete if the NRC adopts a new definition of decommissioning as proposed on February 2, 1994 (59 FR 4868). This definition states, "Decommissioning means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits use of the property for unrestricted use and termination of the license, or (2) release of the property under restricted conditions and termination of the license." To avoid obsolescence of the policy statement as a result of changes in the definition of decommissioning, the commenters recommend replacing all references to release of the site for unrestricted use with "decommissioning of the site consistent with the definition in § 50.2" (Commenters 7, 8 (by reference), and 11).

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Response. The NRC agrees with this recommendation and has changed this final rule accordingly.

Comment 5. Two commenters disagree with a statement in the draft policy statement, "If a licensee of a permanently shut down facility spends decommissioning trust funds on legitimate decommissioning activities, the timing of these expenditures, either before or after NRC approves a licensee's decommissioning plan, should not adversely affect public health and safety, provided adequate funds are maintained to restore the facility to a safe storage configuration in case decommissioning activities are interrupted unexpectedly" (Commenter 7's emphasis). The commenters state that maintaining a viable SAFSTOR option beyond plan approval should not be required for cases where another option has been approved by NRC (Commenters 7 and 8).

The draft policy statement misuses the term "SAFSTOR" to mean maintenance of a site in a safe storage condition prior to receipt of Decommissioning Plan approval and commencement of decommissioning rather than a specific decommissioning alternative defined in NRC regulations (Commenters 11 and 14).

Response. Commenter 7 has misinterpreted the intent of this statement. First, this part of the policy statement was drafted to make the point that any expenditures for decommissioning activities normally viewed as necessary would not be detrimental to public health and safety, notwithstanding the timing of these expenditures, unless they were large enough to prevent the licensee from returning its facility to a safe storage configuration if the decommissioning process were to go awry. This is not the same as requiring a licensee to switch from DECON (immediate dismantlement) to SAFSTOR after the NRC has approved the licensee's decommissioning plan.

This final rule modifies use of the above-referenced criterion for decommissioning trust fund withdrawals. However, the rule corrects any references to SAFSTOR when it means to address the general ability of a licensee to return its reactor to safe storage while awaiting further decommissioning.

Comment 6. Criterion 4 is redundant of the other criteria (Commenters 7 and 8). At a minimum, the statement should indicate that items (c) and (d) of criterion 4 do not require NRC approval before a licensee undertakes the proposed activities (Commenter 8). Redundancies can be eliminated by

factoring the first three criteria into criterion 4. However, issuance of the policy statement based on criterion 4 (or the other criteria) is premature in that the NRC is currently considering more definitive guidance on acceptable pre-plan-approval decommissioning activities (Commenter 11).

Response. The NRC agrees that some confusion may have arisen by including criterion 4 in the policy statement. The NRC included this criterion to provide guidance on the allowed decommissioning activities as opposed to the use of decommissioning trust funds for those activities. Criterion 4 is a quote from Commission guidance in the SRM of January 14, 1993, and, to some degree, overlaps the other criteria of the policy statement. The NRC has removed criterion 4 as a separate criterion in this final rule.

Comment 7. The "ancillary issue" in the draft policy statement should be expanded to include a number of expenses that are paid out of decommissioning trusts by operating plants well in advance of licensee preparation and submission of the decommissioning plan. These expenses include, but are not limited to, trust fees, investment manager fees, income taxes, and periodic site-specific studies (Commenters 7, 8 (by reference), 11, and 14).

The policy statement should be revised to state specifically that if a licensee determines that it meets the criteria for de minimis withdrawals, it need not request permission from the NRC to use these funds (Commenter 8).

* * * The section dealing with 'de minimis' withdrawals for developing the decommissioning plan also seems to be outside the original intent for use of these funds. These withdrawals may seem to be a minor portion of funds allocated for decommissioning, but it starts a process that would allow utilities to tap these funds, if they can fit activities into the definition of decommissioning or simply request to use these funds for other purposes * * * Other uses are unacceptable, even if they are subject to prior regulator approval (Commenter 13).

Response. The intent of the ancillary issue was to allow de minimis withdrawals from decommissioning trust funds of up to \$5 million for decommissioning-related administrative and other expenses without prior NRC consent notwithstanding the operating status of the plant. The final rule has changed this withdrawal amount to up to 3 percent of the generic amount specified in § 50.75(c). This withdrawal amount is for purposes of planning for decommissioning (paper studies) and pertains to licensees of operating as well

as permanently shut down plants. Permission from the NRC to use these funds in de minimis amounts is unnecessary as long as the amount and purpose of the withdrawal is documented.

With respect to Commenter 13's concerns, the NRC has specified a maximum limit for de minimis withdrawals. If a licensee were to exceed this limit or use funds for non-decommissioning purposes, it would be subject to NRC enforcement action.

Comment 8. " * * * The NRC has neither articulated the reasons why this detailed level of oversight (discussed in the policy statement) is needed, nor has the NRC provided specific examples of potential waste and misuse of funds that would warrant their proposed oversight * * * Absent an appropriate justification for the implementation of this policy statement, * * * this policy statement represents regulation without benefit (and that NRC concerns expressed in the policy statement) are not tangible for decommissioning." Thus, the policy statement should not be issued (Commenter 9).

Also, "the draft policy statement provides no basis for the NRC's conclusion that prior NRC review of pre-plan-approval decommissioning fund expenditures should be required." The draft policy statement may satisfy the Commission's directive to the NRC staff to develop a policy without including an approval mechanism (Commenter 11).

The draft policy statement is not clear as to the purpose of the NRC review of decommissioning expenditures before decommissioning plan approval. The only reason for the review, given in the statement of policy, is to ensure the health and safety of the general public. There are other regulatory mechanisms for evaluating the activity for which the funds are withdrawn without reviewing the actual withdrawal from the fund. The expenditure of decommissioning trust funds for legitimate decommissioning activities is an economic and not a safety concern (Commenter 14).

Response. Although the NRC did not include specific examples of waste and misuse of funds in the policy statement, as with any industrial process, costly mistakes can conceivably occur in decommissioning. The NRC also disagrees that codifying decommissioning trust fund withdrawals represents regulation without benefit. The NRC has specifically promulgated decommissioning requirements in 10 CFR 50.82 that include licensee PSDAR submittal process that is intended for

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keeping the NRC and public informed of the licensee's planned decommissioning activities. The intent of the regulations is to require licensees to maintain the entire amount of funds needed for decommissioning in a specified assurance mechanism until the funds are used for their intended decommissioning activities.

The PSDAR is closely tied to a licensee's provision of assurance to fund the decommissioning activities adequately. Without any NRC criteria for expenditures before the PSDAR submittal process is completed, the decommissioning trust fund could become a shell and thus defeat the purpose of NRC decommissioning funding assurance regulations. Because of the safety implications of inadequate decommissioning funds, the NRC believes it has responsibility for specifying withdrawal rates, notwithstanding the reviews that rate regulators may perform.

Comment 9. Trust fund withdrawals should also be permitted for early decommissioning-related activities that, although not themselves directly reducing radioactivity at the site, will significantly facilitate such activities when they subsequently occur (Commenters 11 and 12).

Response. In this final rule, withdrawals for planning activities are allowed before completion of the PSDAR process.

Comment 10. The NRC should clarify footnote 2 to indicate that it applies to licensees of multi-unit sites. "So long as usage of trust withdrawals is identifiable with the shut down reactor and does not diminish decontamination funding subsequently available for reactors which are continuing to operate, there is no reason why multi-reactor licensees should be treated differently than single-reactor licensees for purposes of this policy statement" (Commenter 12).

Response. The NRC agrees with this statement. However, footnote 2 is not included in this final rule.

Comment 11. "If the NRC believes that NRC review and approval of pre-plan-approval decommissioning expenditures is necessary, it should act through rulemaking rather than policy * * * Since prior NRC review of decommissioning fund withdrawals is not currently required, if the NRC wishes to impose such a requirement, it should initiate rulemaking to revise its decommissioning regulations accordingly" (Commenter 11).

Response. This final rule codifies criteria for decommissioning trust fund withdrawals. Thus, this commenter's concerns have been addressed.

Comment 12. "The 'tacit consent' approach for reviewing licensee expenditure plans is inappropriate" and unsupported by the reasons the NRC stated for its policy. By expressly preserving the possibility that it would take action to prevent a fund withdrawal, the NRC blurs its asserted distinction between review and approval. Also, it is not clear that "tacit consent" and "approval" are legally distinguishable for purposes of determining whether the NRC is engaged in a "licensing action" that could involve public participation and environmental review (Commenter 11).

Response. The NRC does not use "tacit consent" in this final rule. Thus, the concerns expressed in this comment should be assuaged.

Comment 13. "Criterion 1 * * * should be revised to eliminate the provision that withdrawals must be for activities 'that would necessarily occur under most reasonable decommissioning scenarios.'" This phrase adds nothing to the preceding provision that the withdrawal must be for "legitimate decommissioning activities." Because licensees may face decommissioning expenditures for activities that are within the NRC's definition of decommissioning but nonetheless unique to their plant(s), the proposed provision is inappropriately restrictive (Commenter 11).

Criterion 1 is overly restrictive and burdensome * * * If the NRC wants to prevent activities that preclude release of the site for (un)restricted use or are not in support of decommissioning efforts it should require review of the activity itself through any of the other available mechanisms such as 10 CFR 50.59 or special rulemaking * * * The basic premise is that in the event that there are circumstances or conditions which delay or preclude proceeding with the decommissioning effort there will be funds available to place the plant in a storage condition until the event or circumstance is resolved. Thus, as long as the value of the fund does not fall below the regulatory required amount in effect at the time of the request the withdrawal should be allowed. Thus, the only requirement should be that the utility document that [the] activity was a legitimate decommissioning activity and the expenditure was reasonable (Commenter 14).

Response. The NRC did not mean to imply that decommissioning activities unique to one site would not be eligible for early trust fund withdrawals. However, because we agree that the phrase, "legitimate decommissioning activities," is sufficient, the NRC has eliminated the phrase from this final rule.

Comment 14. " * * * The explicit characterization as a decommissioning 'contingency' of the funding 'necessary

to maintain the status quo' could be construed inappropriately to require that licensees include funding for that purpose in their decommissioning funds * * * If this criterion is retained, the language regarding provisions for this contingency should be deleted from the policy statement" (Commenter 11).

Response. This terminology has been eliminated in this final rule.

Comment 15. "It does not seem necessary that NRC approve requests for the 'withdrawal of decommissioning funds for early equipment removal, prior to approval of the utilities['] decommissioning plans. This does not seem in concert with the intent of the sample statement under Background * * * the fund trustee should only release funds upon certification that decommissioning is proceeding pursuant to an NRC-approved plan" (Commenter 13).

Response. This final rule does not continue the language in question.

Comment 16. " * * * This ruling may be judged as an item of Compatibility (for Agreement States). Because Maryland regulations, policies, etc., are expected to closely follow Federal rules and procedures, we would be forced to adopt and allow our licensees to use the same principle" (Commenter 13).

Response. The NRC does not believe that this is an issue of State compatibility because this final rule only applies to power reactor licensees, which are exclusively NRC licensees.

Summary of Changes in the Final Rule

Based on the response to comments, a few changes were made in the final rule. Otherwise, the final rule provisions are the same as those presented in the "background" section under the section titled proposed amendments. Specific changes made to the proposed rule in the final rule are summarized as follows:

(1) Section 50.2. The definition of "major radioactive components" has been clarified.

(2) Section 50.36a(a)(1). The amendment has been changed to exclude systems that are no longer necessary for compliance.

(3) Section 50.59. Proposed § 50.59(e) was eliminated. However, three of the proposed rule requirements contained in § 50.59(e) were moved to § 50.82(a)(6) and (7). Placing these requirements in § 50.82 as overall constraints, rather than specific requirements for each § 50.59 activity, required modification of the constraint that the decommissioning activities not result in significantly increasing decommissioning costs. Thus, the final rule (§ 50.82(a)(6)(iii)) prohibits

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decommissioning activities that would result in there no longer being reasonable assurance that adequate funds will be available to complete decommissioning. In addition, the final rule requires in § 50.82(a)(7) that changes from those specified in the PSDAR that would result in significantly increasing decommissioning costs require written notification to the NRC. The fourth requirement that the terms of the existing license not be violated was eliminated. The requirement to consider environmental impact in the PSDAR, § 50.82(a)(4) was modified to explicitly require the reasons for concluding that any environmental impacts will be bounded by existing analysis.

(4) Section 50.71. Section 50.71(e)(4) was revised to permit nuclear power reactor licensees that have submitted the certifications required under § 50.82(a)(1) to update the FSAR every 24-months.

(5) Sections 50.82(a)(4)(i) and (6). The licensee is required to send a copy of the PSDAR and written notification of departure from the PSDAR to the NRC and affected State(s).

(6) Section 50.82(a)(8)(ii). The phrase "being permitted to use" was removed from this section to avoid any incorrect interpretation that the NRC must explicitly approve decommissioning funding expenditures.

(7) Section 50.82. Specifies that once the rule is effective, all power reactor licensees must comply with it. Power reactor licensees that possess an approved plan as well as licensees that applied for plan approval before the rule took effect would have the plan considered a PSDAR submittal, and licensees would be permitted to perform decommissioning activities in accordance with § 50.82. However, for power reactor licensees who are involved in subpart G hearings of 10 CFR part 2, conversion to the new rule will not be permitted until the hearing process is completed and those licensees will be subject to any orders arising from these hearings absent any orders from the Commission.

(8) Section 50.82(a)(1)(iii). Specifies that once the rule is effective, power reactor licensees whose licenses have been modified, before the effective date of this rule, to possess but not operate the facility, will be considered to have submitted the certifications required in § 50.82(a)(1).

(9) To improve clarity, the first sentence in § 2.1205(d)(1) has been rewritten from that proposed to that found in the existing regulation.

(10) To improve clarity and maintain parallelism of requirements, the last

sentence of § 51.53(b) has been rewritten from that found in the proposed rule to correspond with the language found in § 51.95(b) of the proposed (and existing) rule.

(11) To improve clarity, § 50.82(a)(9)(ii) (B) and (F) have been rewritten.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore, an environmental impact statement is not required. The final rule clarifies current decommissioning requirements for nuclear power reactors in 10 CFR Part 50 and presents a more efficient, uniform, and understandable process. The Commission has analyzed the major environmental impacts associated with decommissioning in the Generic Environmental Impact Statement (GEIS), NUREG-0586, August 1988,¹ published in conjunction with the Commission's final decommissioning rule (53 FR 24018; June 27, 1988).

Insofar as this rule would allow major decommissioning (dismantlement) to proceed without an environmental assessment, the environmental impacts of this rule are within the scope of the prior GEIS. The environmental assessment for the final rule and finding of no significant impact on which this determination is based are available for inspection and photocopying for a fee at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Carl Feldman, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, (301) 415-6194.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0011.

Because the rule will relax existing information collection requirements, the public burden for this collection of information is expected to be decreased by 12,202 hours per licensee. This reduction includes the time required for reviewing instructions, searching

existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for further reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC, 20555-0001, or by Internet electronic mail to BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Analysis

The NRC has prepared a regulatory analysis for this final rule. The analysis qualitatively examines the costs and benefits of the alternatives considered by the NRC. In the response to comments, the NRC concluded that only some minor changes to the draft regulatory analysis were necessary, corresponding to some minor procedural changes in the final rule. The regulatory analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20555-0001. Single copies of the analysis may be obtained from Dr. Carl Feldman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6194.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The final rule modifies requirements for timely decommissioning of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of small entities as given in the Regulatory Flexibility Act or the Small Business Size Standards promulgated in regulations issued by the Small Business Administration (13 CFR Part 121). This discussion constitutes the analysis for the regulatory flexibility certification requirement.

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Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs, OMB

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to these final amendments, and therefore, a backfit analysis has not been prepared for this rule. The scope of the backfit provision in 10 CFR 50.109 is limited to construction and operation of reactors. These final amendments would only apply to reactors that have permanently ceased operations and, as such, would not constitute backfits under 10 CFR 50.109.

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalties, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 2, 50, and 51.

61 FR 41303
Published 8/8/96
Effective 9/9/96

10 CFR Part 50

RIN 3150-AC93

Codes and Standards for Nuclear Power Plants; Subsection IWE and Subsection IWL

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Power Plants," and Subsection IWL, "Requirements for Class CC Concrete Components of Light-Water Cooled Power Plants," of Section XI, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) with specified modifications and a limitation. Subsection IWE of the ASME Code provides rules for inservice inspection, repair, and replacement of Class MC pressure retaining components and their integral attachments and of metallic shell and penetration liners of Class CC pressure retaining components and their integral attachments in light-water cooled power plants. Subsection IWL of the ASME Code provides rules for inservice inspection and repair of the reinforced concrete and the post-

tensioning systems of Class CC components. Licensees will be required to incorporate Subsection IWE and Subsection IWL into their inservice inspection (ISI) program. Licensees will also be required to expedite implementation of the containment examinations and to complete the expedited examination in accordance with Subsection IWE and Subsection IWL within 5 years of the effective date of this rule. Provisions have been included that will prevent unnecessary duplication of examinations between the expedited examination and the routine 120-month ISI examinations. Subsection IWE and Subsection IWL have not been previously incorporated by reference into the NRC regulations. The final rule specifies requirements to assure that the critical areas of containments are routinely inspected to detect and take corrective action for defects that could compromise a containment's structural integrity.

EFFECTIVE DATE: September 9, 1996. The incorporation by reference of certain publications listed in the regulations is approved by the Office of the Director of the Office of the Federal Register as of September 9, 1996.

FOR FURTHER INFORMATION CONTACT: Mr. W. E. Norris, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6796.

SUPPLEMENTARY INFORMATION: The NRC is amending its regulations to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWE and Subsection IWL to assure that the critical areas of

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containments are routinely inspected to detect and take corrective action for defects that could compromise a containment's structural integrity. The rate of occurrence of degradation in containments is increasing. Appendix J to 10 CFR part 50 requires a general visual inspection of the containment but does not provide specific guidance on how to perform the necessary containment examinations. This has resulted in a large variation with regard to the performance and the effectiveness of containment examinations. The rate of occurrence of corrosion and degradation of containment structures has been increasing at operating nuclear power plants. There have been 32 reported occurrences of corrosion in metal containments and the liners of concrete containments. This is one-fourth of all operating nuclear power plants. Only four of the 32 occurrences were detected by current containment inspection programs. Nine of these occurrences were first identified by the NRC through its inspections or structural audits. Eleven occurrences were detected by licensees after they were alerted to a degraded condition at another site or through activity other than containment inspection. There have been 34 reported occurrences of degradation of the concrete or of the post-tensioning systems of concrete containments. This is nearly one-half of these types of containments. It is clear that current licensee containment inspection programs have not proved to be adequate to detect the types of degradation which have been reported. Examples of degradation not found by licensees, but initially detected at plants through NRC inspections include: (1) Corrosion of steel containment shells in the drywell and cushion region, resulting in wall thickness reduction to below the minimum design thickness; (2) corrosion of the torus of the steel containment shell (wall thickness below minimum design thickness); (3) corrosion of the liner of a concrete containment to approximately half depth; (4) grease leakage from the tendons of prestressed concrete containments; and (5) leaching as well as excessive cracking in concrete containments.

There are several General Design Criteria (GDC) and ASME Code sections which establish minimum requirements for the design, fabrication, construction, testing, and performance of structures, systems, and components important to safety in water-cooled nuclear power plants. The GDC serve as fundamental underpinnings for many of the most safety important commitments in

licensee design and licensing bases. GDC 16, "Containment design," requires the provision of reactor containment and associated systems to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity into the environment and to ensure that the containment design conditions important to safety are not exceeded for as long as required for postulated accident conditions.

Criterion 53, "Provisions for containment testing and inspection," requires that the reactor containment design permit: (1) Appropriate periodic inspection of all important areas, such as penetrations; (2) an appropriate surveillance program; and (3) periodic testing at containment design pressure of the leak-tightness of penetrations which have resilient seals and expansion bellows. Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," of 10 CFR part 50 contains specific rules for leakage testing of containments. Paragraph III. A. of Appendix J requires that a general inspection of the accessible interior and exterior surfaces of the containment structures and components be performed prior to any Type A test to uncover any evidence of structural deterioration that may affect either the containment structural integrity or leak-tightness (Type A test means tests intended to measure the primary reactor containment overall integrated leakage rate: (1) after the containment has been completed and is ready for operation, and (2) at periodic intervals thereafter).

The metal containment structure of operating nuclear power plants were designed in accordance with either Section III, Subsection NE, "Class MC Components," or Section VIII, of the ASME Code. These subsections contain provisions for the design and construction of metal containment structures, including methods for determining the minimum required wall thicknesses. The minimum wall thickness is that thickness that would ensure that the metal containment structure would continue to maintain its structural integrity under the various stressors and degradation mechanisms which could act on it.

The prestressed concrete containments of most operating nuclear reactors were designed in accordance with ACI-318 provisions taking into consideration their unique features in the design of the post-tensioning system and in determining the prestressing forces. The post-tensioning system is designed so that the concrete containment structure will continue to maintain its structural integrity under

the various stressors and degradation mechanisms which act on it. The liners of concrete containments provide a leak-tight barrier.

These requirements for minimum design wall thicknesses and prestressing forces as provided in these industry standards used to design containment structures are reflected in licensee conditions, technical specifications, and licensee commitments (e.g., the Final Safety Analysis Report).

None of the existing requirements, however, provide specific guidance on how to perform the necessary containment examinations. This lack of guidance has resulted in a large variation with regard to the performance and the effectiveness of licensee containment examination programs. Based on the results of inspections and audits, as well as plant operational experiences, it is clear that many licensee containment examination programs have not detected degradation that could ultimately result in a compromise to the pressure-retaining capability. Some containment structures have been found to have undergone a significant level of degradation that was not detected by these programs.

The Nuclear Management and Resources Council (NUMARC) (which has since become the Nuclear Energy Institute (NEI)) developed a number of industry reports to address license renewal issues. Two of those, one for Pressurized Water Reactor (PWR) containments and the other for Boiling Water Reactor (BWR) containments, were developed for the purpose of managing age-related degradation of containments on a generic basis. The NUMARC plan for containments relies on the examinations contained in Subsection IWE and Subsection IWL to manage age-related degradation, and this plan assumes that these examinations are "in current and effective use." In the BWR Containment Industry Report, NUMARC concluded that "On account of these available and established methods and techniques to adequately manage potential degradation due to general corrosion of freestanding metal containments, no additional measures need to be developed and, as such, general corrosion is not a license renewal concern if the containment minimum wall thickness is maintained and verified." Similarly, in the PWR Containment Industry Report, NUMARC concluded that potentially significant degradation of concrete surfaces, the post-tensioning system, and the liners of concrete containments could be managed effectively if periodically examined in accordance with the

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requirements contained in Subsection IWE and Subsection IWL. The NRC agrees with NEI that these ASME standards, which the industry has participated in developing, would be an effective means for managing age-related containment degradation. Thus, the NRC believes that adoption of these standards is the best approach.

Background

On January 7, 1994 (59 FR 979), the NRC published in the *Federal Register* a proposed amendment to its regulation, 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities," to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWE, and Subsection IWL, of Section XI, Division 1, of the ASME Code with specified modifications and a limitation.

Five modifications were specified in the proposed rule to address two concerns of the NRC. The first concern is that four recommendations for tendon examinations that are included in Regulatory Guide 1.35, "Inservice Inspection of UngROUTed Tendons in Prestressed Concrete Containments," Rev. 3, are not addressed in Subsection IWL (this involves four of the modifications, (§ 50.55a(b)(2)(ix)(A)-(D)). Regulatory Guide 1.35, Rev. 3, describes a basis acceptable to the NRC staff for developing an appropriate inservice inspection and surveillance program for ungrouted tendons in prestressed concrete containment structures. The four recommendations contained in Regulatory Guide 1.35, Rev. 3, which are not addressed by Subsection IWL, provide positions on issues such as failed wires and tendon sheathing filler grease conditions. (The ASME Code has considered the four issues involved and is in the process of adopting them into addenda of Subsection IWL). The second NRC concern is that if there is visible evidence of degradation of the concrete (e.g., leaching, surface cracking) there may also be degradation of inaccessible areas. The fifth modification (§ 50.55a(b)(2)(ix)(E)) requires that inaccessible areas be evaluated when visible conditions exist that suggest the possibility of degradation of these areas.

The limitation which was included in the proposed rule specified the 1992 Edition with the 1992 Addenda of Subsection IWE and Subsection IWL as the earliest version of the ASME Code the NRC finds acceptable. This is because this is the first edition including addenda combination acceptable to the NRC staff that incorporates the concept of base metal examinations and also provides a

comprehensive set of rules for the examination of post-tensioning systems. As originally published in 1981, Subsection IWE preservice examination and inservice examination rules focused on the examination of welds. This weld-based examination philosophy was established in the 1970s as plants were being constructed. It was based on the premise that the welds in pressure vessels and piping were the areas of greatest concern. As containments have aged, degradation of base metal, rather than welds, has been found to be the issue of concern. The 1991 Addenda to the 1989 Edition, the 1992 Edition and the 1992 Addenda to Section XI, Subsection IWE, have promoted the incorporation of base metal examinations.

The proposed rulemaking incorporated a provision for an expedited examination schedule. This expedited examination schedule is necessary to prevent the delay in implementation of Subsection IWE and Subsection IWL (the Summary of Documented Evaluation lists each plant and the delay in implementation which would be encountered if the subsections were implemented through routine updates of the ISI programs). Provisions were incorporated in the proposed rule to ensure that the expedited examination which would be completed within 5 years from the effective date of the rule and the routine 120-month examinations did not duplicate examinations.

On March 4, 1994, the NRC received a request from the Nuclear Management and Resources Council (which has since become part of the Nuclear Energy Institute (NEI)) to extend the public comment period from March 23, 1994 until April 25, 1994, to enable NEI to "provide necessary and constructive comments on the proposed rule change." This was granted, and on March 28, 1994 (59 FR 14373), the NRC published in the *Federal Register* a notice of extension of the public comment period.

Summary of Comments

Comments were received from 25 separate sources. These sources consisted of 15 utilities, one service organization (Entergy Operations, Inc.) representing five nuclear plants, the Nuclear Energy Institute (NEI), the Nuclear Utility Backfitting and Reform Group (NUBARG) represented by the firm of Winston & Strawn, one owner's group (BWR Owner's Group (BWROG)), one architect and engineering firm (Stone & Webster Engineering Corporation), one public citizens group (Ohio Citizens for Responsible Energy

(OCRE)), three individuals, and one consulting firm (VSL Corporation).

Comments received could be divided into three groups. The first group contains those comments which address the administrative aspects of the rule (e.g., backfit considerations, effectiveness of current containment examinations), and the modifications specified by the NRC in the proposed rule. The second and third groups contain those comments which address the technical provisions of Subsection IWE, and Subsection IWL, respectively. The summary and resolution of public comments and all of the verbatim comments which were received (grouped by subject area) are contained in the Summary of Documented Evaluation.

The majority of comments generally addressed one of the following subject areas: (1) The incorporation by reference of Subsection IWE and Subsection IWL into § 50.55a; (2) the development of guidance documents instead of regulatory requirements; (3) the rationale for the proposed backfit; (4) endorsement of the BWROG comments; and (5) the 5-year expedited implementation. These subject areas encompass the comments submitted by NEI and NUBARG, and their comments, if any, are discussed separately in each subject area.

The comments on subject area number one from those that approve of the incorporation by reference of Subsection IWE and Subsection IWL into § 50.55a, can be summarized as follows: (1) There is a need for the periodic examination of containment structures to assure the containment's pressure-retaining and leak-tight capability; (2) Section XI requirements define concise, technically sound programs to assure continuing containment integrity; and (3) input in the development of these rules was provided by all interested parties involved in containment inservice inspection—users, regulators, manufacturers, engineering organizations, and enforcement organizations.

The comments on the other four subject areas are summarized below. The resolution of public comments contains all of the comments which were received. Some of the comments resulted in modifications to the rule, and some of the comments have been transmitted to the ASME for their consideration. A discussion of the comments which led to modifications follows the summary of comments on subject area number five. The resolution of public comments package contains those comments transmitted to the

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ASME. Those comments asked for interpretations of the ASME Code rules.

Regarding subject area number two, eleven commenters believe that additional specific guidance in the form of a guidance document would be more appropriate than a regulation. They concur with NEI that current regulatory requirements for containment integrity and examinations are already provided by existing regulations (GDC 16 and 53 and Appendix J) and licensee commitments. If more detail on how to perform containment examinations is needed, the commenters (including NEI) state that the details could be provided in a regulatory guide, Information Notice, Generic Letter, or in an industry developed guidance document. The NRC does not believe that existing regulations and licensee commitments are adequate. Existing regulations and licensee commitments have not proved to be adequate to detect the types of problems which have been experienced in operating reactors. This is evidenced by the large number of instances of degradation that were found by the NRC through its inspections or audits of plant structures, or by licensees because they were alerted to a degraded condition at another site. Licensee containment inspection programs have generally not detected the types of degradation being reported (only four of the 32 reported instances of corrosion in Class MC containments were discovered as a result of the Appendix J general inspection). Further, the NRC does not believe that providing guidance through a regulatory guide or industry report would generally improve containment examination practices. Licensees were made aware of containment degradation through several industry notices, and yet the staff is still detecting many of occurrences of degradation. The increasing rate of occurrence of containment degradation, the number of occurrences, the extent to which some containments were degraded, the high number of instances discovered through NRC inspections or by licensees because they were alerted to a degradation condition at another site, the time-dependent mechanisms, and the results of the survey performed by the NRC Regional Offices regarding current containment inspections all point to the necessity of imposing additional requirements to ensure that containments comply with design wall thicknesses and prestressing forces. This is a compliance backfit.

With regard to subject area number three, six general comments were received from the Nuclear Utility Backfitting and Reform Group (NUBARG) and from the Nuclear Energy

Institute (NEI) (which were endorsed by other commenters) regarding the incorporation by reference of Subsection IWE and Subsection IWL which are similar in nature. The first comment is that the application of the compliance exception to this rulemaking is inappropriate, and that the proposed rule constitutes a backfit for which a cost-benefit analysis should be performed. The NRC agrees that the rulemaking is a backfit. However, as discussed under the Backfit Statement, the NRC believes that the compliance exception to the backfit rule is appropriate.

The second comment was a citation of a paragraph from the Statement of Considerations to the 1985 final backfit rule which addressed the compliance exception. That paragraph addressed "Section 50.109(a)(4) which creates exceptions for modifications necessary to bring a facility into compliance or to ensure through immediately effective regulatory action that a licensee meets a standard of no undue risk to public health and safety." Both NEI and NUBARG assert that the proposed rule is a new interpretation of how to demonstrate compliance with existing standards and therefore constitutes a backfit under 10 CFR 50.109(a)(1). The NRC does not believe that the use of the compliance exception must be confined only to the situation addressed in the Statement of Consideration to the 1985 final backfit rule—"omission or mistake of fact." In any event, the current unsatisfactory status of containment inservice inspections can be characterized fairly as, in retrospect, a mistake about and omission from the necessary elements of a satisfactory inspection program.

The third comment is that containments must experience corrosion or degradation that is so unanticipated and excessive so as to constitute a genuine compliance concern. Another commenter expressed the idea somewhat differently believing that a broad-based concern with the operability of containment structures through the industry must be demonstrated to be a compliance issue. The NRC agrees with those criteria and concludes, in fact, that there is a broad-based concern regarding the structural integrity of containment structures. The NRC's approach focuses on two questions: (1) Is the corrosion such that there is a basis for reasonably concluding that additional instances of noncompliance with the relevant GDCs, Appendix J, and/or licensee commitments at numerous plants; and (2) whether there is a basis for reasonably believing that the corrosion

would have been identified and properly addressed by the licensees in the absence of additional regulatory requirements. Based on the: (1) Number of occurrences of containment degradation; (2) increasing rate of containment degradation; (3) locations of the degradation; (4) two instances where containment wall thicknesses were below minimum design wall thickness; (5) number of corrosion paths which have been reported; and (6) higher than anticipated corrosion rates in many of the occurrences, the NRC believes that containments are experiencing corrosion or degradation that is unanticipated and excessive. Further, based upon factors (1) to (6) above, the NRC concludes that additional criteria are necessary to ensure that compliance with existing requirements for minimum accepted design wall thicknesses and prestressing forces are maintained (and thereby the ability of the containment to continue to perform its intended safety function).

The fourth comment by NUBARG and NEI suggested that it is part of the anticipated process for the industry to rely upon NRC inspections and audits to identify problems and then alert the industry through NRC documents such as information notices and generic letters. During the presentation to the ACRS on February 10, 1995, NEI asserted that "[i]t really doesn't matter how the utilities identify these instances of degradation." The NRC believes that inspections conducted by licensees should be adequate to ensure that containment degradation is identified without reliance upon NRC inspections.

The fifth NEI and NUBARG comment is that to ensure compliance the NRC could take individual enforcement action rather than endorse ASME standards. The NRC believes that the best approach is to adopt the industry consensus standards (i.e., endorse ASME Section XI Subsection IWE and Subsection IWL). Containment corrosion and degradation have been reported since 1986. The patterns of degradation and the corrective actions were not immediately obvious. Given the number and the extent of the occurrences, and the variability among plants with regard to the performance and the effectiveness of containment inspections, the NRC believes that the best course of action is to endorse ISI requirements to ensure that containments comply with design wall thicknesses and prestressing forces.

The sixth comment is that GDC 16 required containments to be designed and constructed with an allowance for corrosion or degradation of the containment wall over the projected

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design life of the plant. NEI and NUBARG assert that "[i]t is therefore hardly surprising that, as noted in the Statement of Considerations, '[o]ver one-third of the containments have experienced corrosion or other degradation.'" Therefore, they believe there is not a broad-based concern with operability of containment structures. The NRC rejects the argument that because containments have corrosion allowances and corrosion was expected to occur that, *ipso facto*, further inspections are not necessary and the compliance exception is inappropriate. As previously pointed out, in many cases, the corrosion rate has been found to be greater than that for which the containment was designed (in some cases the rate was twice that predicted). Some of the more extreme cases of wall thinning occurred in plants with corrosion allowances. The existence of a corrosion allowance at any given plant is, of course relevant, but only in the context of determining whether a relevant requirement or commitment is likely to be violated during the OL term. A corrosion allowance simply increases the tolerance (time period) for corrosion. However, once the allowance is eroded, then concern with compliance becomes relevant. Based upon the staff's finding of the number and extent of corrosion to date, and the lack of activities to manage the degradation by many licensees, the NRC concludes that it is likely that those licensees will be in violation of applicable requirements for containment structural integrity and leak-tightness during the OL term, absent the imposition of Subsections IWE and IWL. Because licensees have been unable to ensure compliance with current regulatory requirements, the NRC believes that more specific ISI requirements, which expand upon existing requirements for the examination of containment structures in accordance with GDC 16, 53, Appendix A to 10 CFR part 50, and Appendix J to 10 CFR part 50, are needed and are justified for the purpose of ensuring that containments continue to maintain or exceed minimum accepted design wall thicknesses and prestressing forces as provided for in industry standards used to design containments (e.g., Section III and Section VIII of the ASME Code, and the American Concrete Institute Standard ACI-318), as reflected in license conditions, technical specifications, and written licensee commitments (e.g., the Final Safety Analysis Report). The NRC believes that the occurrences of corrosion and other degradation would have been detected by licensees when

conducting the periodic examinations set forth in Subsection IWE and Subsection IWL.

With regard to subject area number four, six commenters believe that the Boiling Water Reactors Owner's Group (BWROG) containment inspection plan (CIP) will adequately address examinations for the primary containment when used in conjunction with other existing examination requirements such as Appendix J. The staff does not believe that the CIP is a comprehensive containment examination program. In the CIP, there is a comparison between the CIP and Subsection IWE. The CIP dismisses seven of the eighteen identified Subsection IWE examinations as not being justifiable even though some of these areas are likely to experience accelerated corrosion. The CIP enumerates the conservatism and margins against failure in the design of Mark I and II containments and concludes that in a typical plant probabilistic risk assessment of failure, the contribution to failure of the containment steel structure is negligible. The NRC believes that the conservatism and margins referred to are not additional tolerances which allow areas of containments to go unexamined. These conservatism and margins were required allowances in the design because of the uncertainties in loadings, in material properties, in analysis, and in the variation of steel thicknesses. Examination of large areas of the containment cannot be dismissed as being non-critical based on conservatism and margins when corrosion has clearly eroded the margin of safety in some cases. In addition, given that only four of the 32 occurrences of corrosion in metal containments and the liners of concrete containments were detected during the pre-integrated leakage rate test examination, the NRC does not believe that the CIP used in conjunction with other existing examination requirements such as Appendix J will adequately address examinations for the primary containment as asserted. The industry initiative that allows a decrease in the frequency of Appendix J leakage rate testing further erodes confidence in the acceptability of the BWROG approach.

Comments were received from ten sources on proposed § 50.55a(g)(6)(ii)(B) which would require a 5-year expedited examination schedule (subject area number five). Most of these comments asked for clarifications of the NRC staff intent of this provision. Some commenters interpreted this provision as a requirement to perform all of the examinations specified for a 10-year

interval in 5 years, which was not the intent. § 50.55a(g)(6)(ii)(B) has been changed to clarify that for Subsection IWE, the baseline inspection will be the inservice examinations which are to be performed during the first period of the first interval. For Subsection IWL, the baseline inspection will be the required inservice examinations which correspond to the year of operation for each unit. The result of the clarification is that § 50.55a(g)(6)(ii)(B)(1) addresses Subsection IWE and § 50.55a(g)(6)(ii)(B)(2) addresses Subsection IWL. § 50.55a(g)(6)(ii)(B)(2) in the proposed rule has become § 50.55a(g)(6)(ii)(B)(3) and § 50.55a(g)(6)(ii)(B)(3) has become § 50.55a(g)(6)(ii)(B)(4) in the final rule.

There was one additional comment submitted by NEI. The proposed rule discussed NEI's (then NUMARC) position on the role of Subsection IWE and Subsection IWL in license renewal. Subsections IWE and IWL were referenced many times as one acceptable approach for managing age-related degradation. The plan for managing age-related degradation assumes that these examinations are "in current and effective use." NEI commented on the above statements in the proposed rule; "Although the BWR and PWR containment IRs [Industry Reports] do reference Subsections IWE and IWL, their identification in the IRs should not be misrepresented to imply that Subsections IWE and IWL are being implemented or that they are required for operating plants during their initial licensing term." The NRC agrees that the IRs were not to be represented as a requirement for operating licensees to implement Subsection IWE and Subsection IWL or their equivalent, and that these subsections were referenced as one acceptable approach of managing age-related degradation for the license renewal period. However, present licensee containment examination programs have not proved to be effective in detecting the types of degradation which have been reported. The number of occurrences and the extent of degradation (which includes cases of noncompliance) leads to the conclusion that additional requirements are needed for managing containment degradation during the operating term. Because Subsections IWE and IWL were developed by the ASME with industry input and found to be acceptable by NEI for managing age-related degradation for the license renewal period, the NRC believes that adoption of those programs at this time is the best approach. The NRC also believes that with implementation of Subsections IWE and

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IWL, the detrimental effects of containment aging will be managed during the current operating term, as well as during the license renewal term.

As a result of the comments received, there is one editorial change, two clarifications, and four modifications in the final rule. With respect to the editorial change, a commenter suggested that the wording of § 50.55a(b)(2)(ix)(D)(2) in the proposed rule be revised to be consistent with § 50.55a(b)(2)(ix)(D)(1) and § 50.55a(b)(2)(ix)(D)(3) of the same paragraph. § 50.55a(b)(2)(ix)(D) addresses the sampling of the grease contained in post-tensioning systems, and conditions, which if found, are reportable. The suggested wording has been adopted in the final rule.

One of the clarifications was to proposed § 50.55(g)(6)(ii)(B). This change was discussed previously in subject area number five. § 50.55a(g)(6)(ii)(B)(1) and § 50.55a(g)(6)(ii)(B)(2) require that licensees conduct the first containment examinations in accordance with Subsection IWE and Subsection IWL (1992 Edition with the 1992 Addenda), modified by § 50.55a(b)(2)(ix) and § 50.55a(b)(2)(x) within 5 years of the effective date of the final rule. This expedited examination schedule is necessary to prevent possible delays in the implementation of Subsection IWE by as much as 20 years and Subsection IWL by as much as 15 years. Subsection IWE, Table IWE-2500-1, permits the deferral of many of the required examinations until the end of the 10-year inspection interval. Adding the 10 years that could pass before some utilities are required to update their ISI plans, a period of 20 years could pass before the first examinations would take place. Subsection IWL is based on a 5-year inspection interval. Adding the possible 10 years before update of existing ISI plans, a period of 15 years could pass before the examinations were performed by plants that have not voluntarily adopted the provisions of Regulatory Guide 1.35, Rev. 3. Expediting implementation of the containment examinations is considered necessary because of the problems that have been identified at various plants, the need to establish expeditiously a baseline for each facility, and the need to identify any existing degradation.

Paragraphs (g)(6)(ii)(B)(3) and (g)(6)(ii)(B)(4) each provide a mechanism for licensees to satisfy the requirements of the routine containment examinations and the expedited examination without duplication. Paragraph (g)(6)(ii)(B)(3) permits licensees to avoid duplicating

examinations required by both the periodic routine and expedited examination programs. This provision is intended to be useful to those licensees that would be required to implement the expedited examination during the first periodic interval that routine containment examinations are required. Paragraph (g)(6)(ii)(B)(4) allows licensees to use a recently performed examination of the post-tensioning system to satisfy the requirements for the expedited examination of the containment post-tensioning system. This situation would occur for licensees who perform an examination of the post-tensioning system using Regulatory Guide 1.35 between the effective date of this rule and the beginning of the expedited examination.

The four modifications are: (1) § 50.55a(b)(2)(x)(A) expands the evaluation of inaccessible areas of concrete containments (Class CC) to metal containments and the liners of concrete containments (Class MC); (2) § 50.55a(b)(2)(x)(B) permits alternative lighting and resolution requirements for remote visual examination of the containment; (3) § 50.55a(b)(2)(x)(C) makes the examination of pressure retaining welds and pressure retaining dissimilar metal welds optional; and (4) § 50.55a(b)(2)(x)(D) has been added to provide an alternative sampling plan. Section 50.55a(b)(2)(x)(E), a clarification, more clearly defines the frequency of the Subsection IWE general visual examination.

The first modification, § 50.55a(b)(2)(x)(A), which expands the evaluation of inaccessible areas of concrete containments (Class CC) to metal containments and the liners of concrete containments (Class MC), was the result of a comment received on § 50.55a(b)(2)(ix)(E) of the proposed rule. The commenter believed that given the number of occurrences of corrosion in Class MC containments, the proposed provision (which only addressed concrete containments) should be expanded in the final rule to include metal containments and the liners of concrete containments.

The second modification, § 50.55a(b)(2)(x)(B), was added to the final rule to permit alternative lighting and resolution requirements for remote visual examination of the containment. Subsection IWE references the lighting and resolution requirements contained in IWA-2200. The lighting and resolution requirements contained in IWA-2200 would on a practical basis preclude remote containment examination.

The third modification, § 50.55a(b)(2)(x)(C), makes the

examinations of Subsection IWE, Examination Category E-B (pressure retaining welds) and Subsection IWE, Examination Category E-F (pressure retaining dissimilar metal welds) optional. The NRC staff concludes that requiring these examinations is not appropriate. There is no evidence of problems associated with welds of this type under the given operating conditions. In addition, the occupational radiation exposure that would be incurred while performing these examinations cannot be justified. It is estimated that the total occupational exposure that would be incurred yearly in the performance of the containment weld examinations in accordance with Examination Categories E-B and E-F would be 440 person-rems.

The fourth modification, § 50.55a(b)(2)(x)(D), provides an alternative to the ASME Section XI requirements for "additional examinations" (note: additional examinations are required during the same outage when acceptance criteria are exceeded). The alternative would allow licensees to determine the number of additional components to be examined based on an evaluation to determine the extent and nature of the degradation. Five commenters believe that the requirements for additional examinations used in other subsections of Section XI is inappropriate for containment components. Additional examinations are incorporated into Section XI to determine the extent to which degradation found in one component exists in other similar components. In some instances, a large number of additional examinations could be required. The commenters believe that a review of the operational history of containment components shows that the degradation is limited to the area in question and is not widespread. This makes the Section XI requirements for additional examinations burdensome and inappropriate for application to containments. The NRC agrees and revised the rule to permit the alternative to the Section XI requirements for additional examinations.

The NRC believes that these modifications improve the final rule and will improve the containment inspection program as set forth by Subsection IWE and Subsection IWL. Some of the public comments cited failure data which have been accumulated in recent years in support of various NRC staff activities and industry initiatives. Most of this data has been accumulated since the ASME committees developed these subsections. Without the benefit of this

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recently accumulated operational data, the ASME committees responsible for developing Subsection IWE and Subsection IWL modelled those subsections on other subsections of Section XI and the experience gained from application of those other subsections. With the additional insights drawn from analysis of this new data, it is apparent that many aspects of containments are unique compared to components of other systems. Some of the containment components which were expected to experience degradation, based on experience with other systems, have proved not to be susceptible to the same type of degradation. The ASME working groups are considering these issues. However, based on initial committee discussion, it is anticipated that similar changes will be made to Subsection IWE and Subsection IWL, but the length of the ASME consensus process precludes the possibility of the changes being adopted into the ASME Code in the near term. Hence, the NRC has determined to adopt the 1992 Edition with the 1992 Addenda of Subsection IWE and Subsection IWL with the modifications which were previously discussed.

Other Provisions Contained in the Final Rule

The following paragraph was contained in the proposed rule and has not been discussed previously. This paragraph received comments which resulted in the provision being dropped in the final rule. Section 50.55a(b)(2)(x) was a provision in the proposed rule intended to provide licensees with a mechanism to merge the Subsection IWE and Subsection IWL ISI program with their routine 120-month ISI program. Those licensees who were near the end of their present 10-year ISI interval when the final rule becomes effective would have been given an additional 2 years to submit their containment ISI program. Several commenters responded that due to the time constraints of having to develop the containment ISI program and then perform the required examinations within 5 years, the additional 2 years could not be utilized. Therefore, § 50.55a(b)(2)(x) as it appeared in the proposed rule has been deleted, and § 50.55a(b)(2)(x) in the final rule contains the modifications which were added as a result of public comment on the proposed rule.

The provisions in this paragraph and the following four paragraphs were contained in the proposed rule and have not changed due to comments. Section 50.55a(b)(2)(vi) incorporates a limitation specifying the 1992 Edition with 1992

Addenda of Subsection IWE and Subsection IWL as the earliest ASME Code version the NRC finds acceptable. This edition and addenda incorporate the concept of base metal examinations and also provide a comprehensive set of rules for the examination of post-tensioning systems. It should be noted that the wording of this provision has been changed in the final rule in order to make it consistent with other provisions in § 50.55a(b).

Section 50.55a(b)(2)(ix) specifies five modifications that must be implemented when using Subsection IWL. Four of these issues are identified in Regulatory Guide 1.35, Revision 3, but are not currently addressed in Subsection IWL. Section 50.55a(b)(2)(ix)(A) requires that grease caps which are accessible must be visually examined to detect grease leakage or grease cap deformation. Section 50.55a(b)(2)(ix)(B) requires the preparation of an Engineering Evaluation Report when consecutive surveillances indicate a trend of prestress loss to below the minimum prestress requirements. Section 50.55a(b)(2)(ix)(C) requires an evaluation to be performed for instances of wire failure and slip of wires in anchorages. Section 50.55a(b)(2)(ix)(D) addresses sampled sheathing filler grease and reportable conditions. A comment was received on this provision which resulted in an editorial change (this was discussed on page 12). Section 50.55a(b)(2)(ix)(E) requires that licensees evaluate the acceptability of inaccessible areas of concrete containments when conditions exist in accessible areas that suggest the possibility of degradation in inaccessible areas.

Existing § 50.55a(g), "Inservice inspection requirements," specifies the requirements for preservice and inservice examinations for Class 1 (Class 1 refers to components of the reactor coolant pressure boundary), Class 2 (Class 2 quality standards are applied to water- and steam-containing pressure vessels, heat exchangers (other than turbines and condensers), storage tanks, piping, pumps, and valves that are part of the reactor coolant pressure boundary (e.g., systems designed for residual heat removal and emergency core cooling)), and Class 3 (Class 3 quality standards are applied to radioactive-waste-containing pressure vessels, heat exchangers (other than turbines and condensers), storage tanks, piping, pumps, and valves (not part of the reactor coolant pressure boundary)) components and their supports. Subsection IWE (Class MC—metal containments) and Subsection IWL (Class CC—concrete containments) are

incorporated by reference into the NRC regulations for the first time.

Section 50.55a(g)(4) specifies the containment components to which the ASME Code Class MC and Class CC inservice inspection classifications incorporated by reference in this rule will apply.

Section 50.55a (g)(4)(v)(A), (v)(B), and (v)(C) specify the Subsection IWE and Subsection IWL rules for inservice inspection, repair, and replacement of metal and concrete containments. This is consistent with the long-standing intent and ongoing application by NRC and licensees to utilize the rules of Section XI when performing inservice inspection, repairs, and replacements of applicable components and their supports.

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action that significantly affects the quality of the human environment and therefore an environmental impact statement is not required.

This final rule is one part of a regulatory framework directed to ensuring containment integrity. Therefore, in the general sense, this rule will have a positive impact on the environment. This rule incorporates by reference into the NRC regulations requirements contained in the ASME Code for the inservice inspection of the containments of nuclear power plants. The performance of containment examinations, as set forth by the provisions of this final rule, for PWRs, Ice Condensers, and BWR Mark IIs and IIIs is not expected to result in significant occupational radiation exposure (1.0 person-rems per year or 0.04 person-rems per unit averaged over 27 examinations each year). The above categories of plants, for which the occupational radiation exposure is insignificant, represent the vast majority of units (89). For BWR Mark I containments, the estimated occupational radiation exposure which

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would be incurred per year while performing BWR Mark I containment examination is 29.4 person-rem per year or 4.2 person-rem per unit averaged over 7 examinations per year. However, the estimated occupational radiation exposure per unit does not provide an accurate representation of the actual radiological exposure that would be incurred by any one individual. 10 CFR 20.101, "Radiation dose standards for individuals in restricted areas" only permits a whole body dose of 1.25 rem per calendar quarter. As a practical matter, licensees carefully manage the exposure incurred by any one individual by practicing and applying "as low as reasonably achievable" (ALARA) principles to protect the health and safety of personnel. In the performance of the examination of BWR Mark I containments, this is accomplished by having several individuals perform the examinations to "spread out" the exposure. In this manner, no one individual will suffer any significant health effects. It also must be kept in mind that these containment examinations are scheduled to occur at the interval of once every 3½ years. This provides licensees ample time for planning the examinations, and scheduling personnel in accord with ALARA considerations. Therefore, the occupational radiation exposure is insignificant given the relatively low exposure on a unit basis and the licensees' programs for controlling the impact of exposure for any one individual.

Actions required of applicants and licensees to implement containment examinations are of the same nature that applicants and licensees have been performing for many years in other Section XI ISI programs. Extension of these actions to additional components, therefore, should not increase the potential for a negative environmental impact.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Mr. W. E. Norris, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6796.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject

to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0011.

The public reporting burden for this collection of information is estimated to average 4,000 hours per response for development of an initial inservice inspection plan; and 8,000 hours per response for the update of the plan and periodic examinations, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The estimate of 8,000 hours for plan update and performing periodic examinations is a 2,000 hour reduction from the estimate given in the proposed rulemaking. This reduction results from changes made in response to public comment: A number of examinations have been modified or made optional greatly reducing the effort required to comply with the requirements contained in the final rule. Send comments on any aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule will not have a significant economic impact on a substantial number of small entities. This rule affects only the operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121. Since these companies are dominant in their service areas, this rule does not fall within the purview of the Act.

Backfit Statement

The NRC is amending its regulations to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWE and Subsection IWL to assure that the critical areas of containments are routinely inspected to detect defects that could compromise a containment's structural integrity. Based on a preponderance of reliable information, the NRC concludes that this rule is a compliance backfit, and therefore a backfit analysis is not required pursuant to 10 CFR 50.109(a)(4)(i). A summary of noncompliance is set forth below. The documented evaluation required by § 50.109(a)(4) to support this conclusion is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Mr. W. E. Norris, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6796.

The rate of occurrence of corrosion and degradation of containment structures has been increasing at operating nuclear power plants. There have been 32 reported occurrences of corrosion in metal containments and the liners of concrete containments. This is approximately one-fourth of all operating nuclear power plants. Only four of the 32 occurrences were detected by current licensee containment inspection programs. Nine of these occurrences were first identified by the NRC through its inspections or structural audits. Eleven occurrences were detected by licensees after they were alerted to a degraded condition at another site or through activity other than containment inspection. There have been 34 reported occurrences of degradation of the concrete or of the post-tensioning systems of concrete containments. This is nearly one-half of these types of containments. It is clear that current licensee containment inspection programs have not proved to be adequate to detect the types of degradation which have been reported. Examples of degradation not found by licensees, but initially detected at plants through NRC inspections include: (1) Corrosion of steel containment shells in the drywell sand cushion region, resulting in wall thickness reduction to below the minimum design thickness; (2) corrosion of the torus of the steel containment shell (wall thickness below minimum design thickness); (3) extensive corrosion of the liner of a concrete containment with local

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degradation at many locations to approximately half-depth; (4) grease leakage from the tendons of prestressed concrete containments; and (5) leaching as well as excessive cracking in concrete containments.

None of the existing requirements for containment inspection provide specific guidance on how to perform the necessary containment examinations. This lack of guidance has resulted in a large variation with regard to the performance and the effectiveness of licensee containment examination programs. Based on the results of inspections and audits, and plant operational experiences, it is clear that many licensee containment examination programs have not detected degradation that could result in a compromise of pressure-retaining capability.

Most of those occurrences were first identified by the NRC through its inspections or audits of plant structures, or by licensees while performing an unrelated activity or, after they were alerted to a degraded condition at another site. In analyzing the reported containment degradation, it is apparent that all containments are subject to certain type(s) of degradation depending on the design. Information gathered by the staff indicates that many licensees still have not reacted to this serious safety concern and have not initiated comprehensive containment inservice inspection. As a result of the rate of occurrence of containment degradation, and the extent of containment degradation, the NRC believes that there is a basis for reasonably concluding that such degradation is widespread and affects virtually all plants. Because of the serious degradation which has occurred, the belief that additional occurrences of noncompliance with required minimum wall thicknesses and prestressing forces will be reported, and the high likelihood that some of those occurrences could result in loss of structural integrity and leak-tightness, the NRC has determined that imposition of these containment inservice inspection requirements under the compliance exception to 10 CFR 50.109(a)(4)(i) is appropriate.

The NRC believes that the final action would also result in a substantial safety increase and that the direct and indirect costs of implementation are justified in view of the significant safety benefit to be gained. The NRC believes that the inspections contained in Subsections IWE and IWL will improve significantly the ability to detect degradation and take timely action to correct degradation of containment structures. A review of early implementation of the maintenance rule (10 CFR 50.65) at nine

nuclear power plants, which is documented in NUREG-1526, indicates that most licensees assigned a low priority to the monitoring of structures. Several licensees incorrectly assumed that many of their structures are inherently reliable. This is true so long as there is no degradation. However, the degradation of structures can reduce high margins of safety to a low or negligible margin of safety. As discussed earlier, such substantial containment degradations have been detected at a large number of nuclear power plants, and their detection to date can best be characterized as happenstance. The final rule will provide for improved periodic examination of containment structures assuring that the critical areas of containment are periodically inspected to detect and take corrective action for defects that could compromise the containment's pressure-retaining and leak-tight capability. The NRC believes, therefore, that the final action can be justified as a cost-justified safety enhancement backfit, as well as a compliance backfit.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal Penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 533, the NRC is adopting the following amendments to 10 CFR part 50.

61 FR 65157
Published 12/11/96
Effective 1/10/97

*Reactor Site Criteria Including Seismic
and Earthquake Engineering Criteria
for Nuclear Power Plants*

See Part 100 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
51**

**ENVIRONMENTAL PROTECTION REGULATIONS FOR
DOMESTIC LICENSING AND RELATED
REGULATORY FUNCTIONS**

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staff. These amendments are required because of the assignment of new telephone numbers in conjunction with the recent consolidation of approximately one-half of the NRC's headquarters staff to its new location in Rockville, Maryland. These amendments are being made to inform NRC licensees and members of the public of the new telephone numbers.

EFFECTIVE DATE: April 25, 1988.

FOR FURTHER INFORMATION CONTACT: Donnie H. Grimsley, Director, Division of Rules and Records, Office of Administration and Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: 301-492-7211.

SUPPLEMENTARY INFORMATION: On March 28, 1988, the Office of the Executive Director for Operations and portions of the Office of Governmental and Public Affairs (GPA)—the Director of GPA and the Public Affairs staff—relocated at the agency's new office building in Rockville, Maryland. A notice to that effect was published in the *Federal Register* on March 31, 1988 (53 FR 10449). These amendments reflect the assignment of new telephone numbers to certain relocated agency personnel.

Because these amendments deal solely with the organization and relocation of agency personnel, the notice and comment provisions of the Administrative Procedure Act do not apply under 5 U.S.C. 553(b)(1)(A). These amendments are effective upon publication in the *Federal Register*. Good cause exists to dispense with the usual 30-day delay in the effective date, because these amendments are of a minor and administrative nature.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule contains no information collection requirements and therefore is

not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

List of Subjects in 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 51.

53 FR 24018
Published 6/27/88
Effective 7/27/88

General Requirements for
Decommissioning Nuclear Facilities

See Part 30 Statements of Consideration

53 FR 31651
Published 8/19/88
Effective 9/19/88

*Licensing Requirements for the
Independent Storage of Spent Nuclear
Fuel and High-Level Radioactive
Waste*

See Part 72 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

*Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes*

See Part 1 Statements of Consideration

54 FR 15372
Published 4/18/89
Effective 5/18/89

*Early Site Permits; Standard Design
Certifications; and Combined Licenses
for Nuclear Power Reactors*

See Part 52 Statements of Consideration

54 FR 27864
Published 7/3/89
Effective 8/2/89

*NEPA Review Procedures for Geologic
Repositories for High-Level Waste*

See Part 60 Statements of Consideration

52 FR 8225
Published 3/17/87
Effective 7/14/87

Licenses and Radiation Safety
Requirements for Well Logging

See Part 39 Statements of Consideration

52 FR 19303
Published 5/22/87

Domestic Licensing of Production and
Utilization Facilities; Communications
Procedures Amendments; Correction

See Part 50 Statements of Consideration

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General
Information

See Part 1 Statements of Consideration

53 FR 13399
Published 4/25/88
Effective 4/25/88

10 CFR Part 51

**Revision of Telephone Numbers for
Environmental Inquiries**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to environmental matters to indicate the revision of five telephone numbers that enable prospective applicants or petitioners to consult with members of the NRC's

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54 FR 39767

Published 9/28/89

Comment period expires 12/27/89.

10 CFR Part 51

Waste Confidence Decision Review

AGENCY: Nuclear Regulatory Commission.

ACTION: Review and proposed revision of waste confidence decision.

SUMMARY: On August 31, 1984, the Nuclear Regulatory Commission (NRC) issued a final decision on what has come to be known as its "Waste Confidence Proceeding." The purpose of that proceeding was " * * * to assess generically the degree of assurance now available that radioactive waste can be safely disposed of, to determine when such disposal or offsite storage will be available and to determine whether radioactive waste can be safely stored onsite past the expiration of existing facility licenses until offsite disposal or storage is available." (49 FR 34658). The purpose of this notice is to present for public comment the proposed findings of a Commission review of that Decision.

The Commission noted in 1984 that its Waste Confidence Decision was unavoidably in the nature of a prediction, and committed to review its conclusions " * * * should significant and pertinent unexpected events occur or at least every five years until a repository is available."

The Commission has reviewed its five findings and the rationale for them in light of developments since 1984. This proposed revised waste Confidence Decision supplements those 1984

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findings and the environmental analysis supporting them. The Commission proposes that the second and fourth findings in the Waste Confidence Decision be revised as follows:

Finding 2: The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

Finding 4: The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

The Commission proposes to reaffirm the remaining findings. Each finding, any proposed revisions, and the reasons for revising or reaffirming them are set forth in the body of the review below.

The Commission also issued two companion rulemaking amendments at the time it issued the 1984 Waste Confidence Decision. The Commission's reactor licensing rule, 10 CFR part 50, was amended to require each licensed reactor operator to submit, no later than five years before expiration of the operating license, plans for managing spent fuel at the reactor site until the spent fuel is transferred to the Department of Energy (DOE) for disposal under the Nuclear Waste Policy Act of 1982 (NWPA). 10 CFR part 51, the rule defining NRC's responsibilities under the National Environmental Policy Act (NEPA), was amended to provide that, in connection with the issuance or amendment of a reactor operating license or initial license for an independent spent fuel storage installation, no discussion of any environmental impact of spent fuel storage is required for the period following expiration of the license or amendment applied for.

In keeping with the proposed revised Findings 2 and 4, the Commission is providing elsewhere in this issue of the **Federal Register** proposed conforming amendments to its 10 CFR part 51 rule providing procedures of considering in licensing proceedings the environmental effects of extended onsite storage of spent fuel.

Finally, the Commission proposes to extend the cycle of its Waste Confidence reviews from every five years to every ten until a repository becomes available. In its 1984 Decision, the Commission said that because its conclusions were " * * * unavoidably in the nature of a prediction," it would review them " * * * should significant and unexpected events occur, or at least every five years until a repository * * * is available." As noted below, the Commission now believes that predictions of repository availability are best expressed in terms of decades rather than years. To specify a year for the expected availability of a repository decades hence would misleadingly imply a degree of precision now unattainable. Accordingly, the Commission proposes to change its original commitment in order to review its Waste Confidence Decision at least every ten years. This would not, however, disturb the Commission's original commitment to review its Decision whenever significant and pertinent unexpected events occur.

DATES: The comment period expires December 27, 1989. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except to comments received on or before this date.

ADDRESSES: Mail written comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. Deliver comments to One White Flint North, 11555 Rockville Pike, Rockville, MD between 7:30 a.m. and 4:15 p.m. weekdays.

FOR FURTHER INFORMATION CONTACT: Rob MacDougall, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (202) 492-3401; or John Roberts, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (202) 492-0608.

SUPPLEMENTARY INFORMATION:

Background

In November 1976, the Natural Resources Defense Council (NRDC) petitioned NRC for a rulemaking to determine whether radioactive wastes generated in nuclear power reactor can be subsequently disposed of without undue risk to the public health and safety. The NRDC also requested that NRC not grant pending or future requests for operating licenses until the petitioned finding of safety was made.

On June 27, 1977, NRC denied the NRDC petition. The Commission said that in issuing operating licenses, NRC must have assurance that wastes can be safely handled and stored as they are generated. It also said that it is not necessary for permanent disposal to be available if NRC could be confident that permanent disposal could be accomplished when necessary. NRC added that Congress was aware of the relationship between nuclear reactor operations and the radioactive waste disposal problem, and that NRC would not refrain from issuing reactor operating licenses until the disposal problem was resolved. The Commission also stated that it " * * * would not continue to license reactors if it did not have reasonable confidence that the wastes can and will in due course be disposed of safely."

Also in November 1976, two utility companies requested amendments to their operating licenses to permit expansion in the capacity of this spent nuclear fuel storage pools: Vermont Yankee Nuclear Power Corporation for the Vermont Yankee plant; and Northern States Power Company for its Prairie Island facility. In both cases, the utilities planned to increase storage capacity through closer spacing of spent fuel assemblies in existing spent fuel pools. The New England Coalition on Nuclear Power and the Minnesota Pollution Control Agency intervened. The NRC staff evaluated the requests and found that the modifications would not endanger public health and safety. The staff did not consider any potential environmental effects of storage of spent fuel at the reactors beyond the dates of expiration of their operating licenses. NRC's Atomic Safety and Licensing Board Panel (ASLBP) adopted the staff's safety and environmental findings and approved the license amendments for the two plants. It too did not consider the effects of at-reactor storage beyond the expiration of the facility operating license.

The Board's decision was appealed to the Atomic Safety and Licensing Appeal Board (ASLAB). The ASLAB affirmed the Licensing Board's decision, citing the Commission's " * * * reasonable confidence that wastes can and will in due course be disposed of safely * * *" in the Commission's denial of the NRDC petition. The decision of the ASLAB was appealed to the U.S. Circuit Court of Appeals.

On May 23, 1979 the Court declined to stay or vacate the license amendments, but remanded to NRC the question of " * * * whether there is reasonable assurance that an offsite storage

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solution will be available by the years 2007-2009, the expiration of the plants' operating licenses, and if not, whether there is reasonable assurance that the fuel can be safely stored at the reactor sites beyond those dates." In its decision to remand to NRC, for consideration in either a generic rulemaking or an adjudicatory proceeding, the Court observed that the issues of storage and disposal of nuclear waste were being considered by the Commission in an ongoing generic proceeding known as the "S-3 Proceeding" on the environmental impacts of uranium fuel cycle activities to support the operation of a light water reactor, and that it was appropriate to remand in light of a pending decision on that proceeding and analysis.

On October 18, 1979, NRC announced that it was initiating a rulemaking proceeding in response to the Appeals Court remand and as a continuation of the NRDC proceeding. Specifically, the purpose of the proceeding was for the Commission " * * * to reassess its degree of confidence that radioactive wastes produced by nuclear facilities will be safely disposed of, to determine when any such disposal will be available, and whether such wastes can be safely stored until they are disposed of."

The Commission recognized that the scope of this proceeding would be broader than the Court's instruction, which required the Commission to address only storage-related questions. The Commission believed, however, that the primary public concern was the safety of waste disposal rather than the availability of an off-site solution to the storage problem. The Commission also committed itself to reassess its basis for confidence that methods of safe permanent disposal for high-level waste would be available when needed. Thus, the Commission chose as a matter of policy not to confine itself exclusively to the narrower issues in the court remand.

In the Notice of Proposed Rulemaking, the Commission also stated that if the proceeding led to a finding that safe off-site storage or disposal would be available before expiration of facility operating licenses, NRC would promulgate a rule providing that the impact of onsite storage of spent fuel after expiration of facility operating licenses need not be considered in individual licensing proceedings.

The Waste Confidence Decision was issued on August 31, 1984 (49 FR 34658). In the Decision, the Commission made five findings. It found reasonable assurance that:

(1) Safe disposal of high-level radioactive waste and spent fuel in a

mined geologic repository is technically feasible.

(2) One or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-2009, and sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

(3) High-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level radioactive waste and spent fuel.

(4) If necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of that reactor's operating license at that reactor's spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

(5) Safe independent onsite or offsite spent fuel storage will be made available if such storage capacity is needed.

On the day the Decision was issued, the Commission also promulgated two rulemaking amendments: (1) An amendment to 10 CFR part 50, which required that no later than five years before expiration of reactor operating licenses, the licensee must provide NRC with a written plan for management of spent fuel onsite, until title for the spent fuel is transferred to the DOE; and (2) an amendment to 10 CFR part 51 which provided that environmental consequences of spent fuel storage after expiration of facility licenses need not be addressed in connection with issuance of or amendment to a reactor operating license.

In issuing the part 51 amendment, the Commission stated that although it had reasonable assurance that one or more repositories would be available by 2007-2009, it was possible that some spent fuel would have to be stored beyond those dates. The part 51 amendment was based on the Commission's finding in the Waste Confidence Proceeding that it had reasonable assurance that no significant environmental impacts will result from storage of spent fuel for at least 30 years beyond expiration of reactor operating licenses.

Enactment of the NWPA contributed significantly to the basis for the Commission's 1984 Decision and companion rulemakings. The Act established a funding source and process with milestones and schedules

for, among other things, the development of a monitored retrievable storage (MRS) facility and two repositories, one by early 1998 and a second, if authorized by Congress, at a later date, initially planned by DOE for 2006. For each repository, the Act required DOE to conduct *in-situ* investigations of three sites and recommend one from among them to the President and Congress for repository development. The NWPA also required DOE to recommend, from among alternative sites and designs, a site and design for an MRS for spent fuel and high-level waste management before disposal. The Commission's licensing and regulatory authority over both storage and disposal facilities was preserved by the Act.

In the four years after enactment of the NWPA, DOE met a number of the Act's early program requirements, but also encountered significant difficulties. It published a final Mission Plan for the overall NWPA program, and followed with a Project Decision Schedule for DOE and other Federal agency actions. It promulgated, with Commission concurrence, a set of guidelines for repository siting and development. It published draft and final environmental assessments for nine candidate repository sites, and recommended three for characterization. It completed and submitted to Congress an environmental assessment, a program plan, and a proposal with a site and design for an MRS. All these actions followed extensive interactions with interested Federal agencies, State, Indian tribal, and local governments, and other organizations. In the course of these activities, however, DOE also slipped its schedule for operation of the first repository by five years, indefinitely postponed efforts toward a second repository, and had to halt further MRS siting and development activities pending Congressional authorization.

In December, 1987, Congress enacted the Nuclear Waste Policy Amendments Act (NWPAA). The NWPAA redirected the high-level waste program by suspending site characterization activities for the first repository at sites other than the Yucca Mountain site, and by suspending all site-specific activities with respect to a second repository. The Amendments Act also authorized and set schedule and capacity limits on the MRS. The purpose of these limitations, according to sponsors of the legislation, was to assure that an MRS would not become a substitute for a geologic repository.

Consistent with its commitment to revisit its Waste Confidence conclusions at least every five years, the

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Commission has undertaken the current review to assess the effect of these and other developments since 1984 on the basis for each of its five findings. In this document, the Commission supplements the basis for its earlier findings and the environmental analysis of the 1984 Decision. The Commission proposes to amend its second finding, concerning the timing of initial availability and sufficient capacity of a repository, and its fourth finding, concerning the duration of safe spent fuel storage. These proposed revisions are based on the following considerations:

(1) The five-year slippage, from 1998 to 2003, in the DOE schedule for repository availability;

(2) The additional slip of at least 18 months since January 1987 in the DOE schedule for the next step in the repository program, the excavation of the exploratory shaft;

(3) The need to continue accounting for the possibility that the Yucca Mountain site might be found unsuitable and that DOE would have to initiate efforts to identify and characterize another site for the first repository;

(4) The statutory suspension of site-specific activities for the second repository;

(5) DOE's estimate that site screening for a second repository should start about 25 years before the start of waste acceptance; and

(6) Increased confidence in the safety of extended spent fuel storage, either at the reactor or at independent spent fuel storage installations.

The Commission is also proposing elsewhere in this issue of the **Federal Register** that 10 CFR § 51.23(a) be amended to confirm with the proposed revisions to Findings 2 and 4.

Organization and Table of Contents

In conducting this review, the Commission has addressed, for each of its 1984 Findings, two categories of issues. The first category consists of the issues the Commission considered in making each Finding at the time of the initial Waste Confidence Decision. For these issues, the Commission is interested in whether its conclusions, or the Finding these conclusions support, should be changed to address new or foreseeable developments that have arisen since the first Waste Confidence Decision. The second category of issues consists of those the Commission believes should be added to the 1984 issues in light of subsequent developments. (To enable the reader to follow more easily, the lengthy discussions of Findings 1 and 2 have been organized to address each original and new issue under subheadings.) The

Commission seeks comment on whether it has identified all the issues relevant to its proposed findings, and on whether its analyses of these issues supports the conclusions and findings proposed.

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Original Finding 1

The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

Proposed Finding I

Same as above.

1.A. Issues Considered in Commission's 1984 Decision on Finding 1

1.A.1. The Identification of Acceptable Sites

Under the Nuclear Waste Policy Act of 1982 (NWPA), the Department of Energy (DOE) had responsibility for identifying candidate sites for a geologic repository and for repository development. The first requirement leading to recommendation of candidate sites was formal notification of States with one or more potentially acceptable sites for a repository within 90 days of

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enactment of the NWPA. In February 1983, the DOE identified nine potentially acceptable sites for the first repository. Four of the sites were in bedded-salt formations, three were in salt domes, one in volcanic tuff, and one in basalt.

The NWPA required that each site nomination be accompanied by an environmental assessment (EA). In December 1984, DOE published Draft EAs (DEAs) for each of the nine sites identified as potentially acceptable and proposed the following sites for nomination: The reference repository location at Hanford, WA; Yucca Mountain, NV; Deaf Smith County, TX; Davis, Canyon, UT; and Richton Dome, MS. In May 1986, DOE released Final EAs (FEAs) for the five sites nominated. At that time, DOE recommended that the Yucca Mountain, Hanford, and Deaf Smith County sites undergo site characterization. The President approved the recommendation.

The NRC staff provided extensive comments on both the DEAs and the FEAs. NRC concerns on the FEAs related primarily to DOE's failure to recognize uncertainty inherent in the existing limited data bases for the recommended sites, and the tendency of DOE to present overly favorable or optimistic conclusions. The primary intent of the comments was to assist DOE in preparing high-quality Site Characterization Plans (SCPs) for each site, as required under the NWPA, before excavation of exploratory shafts. NRC concerns can only be addressed adequately through the site characterization process, because one of the purposes of this process is to develop the data to evaluate the significance of concerns relative to site suitability.

NRC did not identify any fundamental technical flaw or disqualifying factor which it believed would render any of the sites unsuitable for characterization. Further, NRC did not take a position on the ranking of the sites in order of preference, because this could be viewed as a prejudgment of licensing issues. NRC was not aware of any reason that would indicate that any of the candidate sites was unlicenseable. Nor has NRC made any such finding to date with respect to any site identified as potentially acceptable.

In March 1987, Congress began drafting legislation to amend the repository program. NRC provided comments on a number of these draft amendments. In December 1987, the NWPA was enacted. In a major departure from the initial intent of the NWPA, the new law required that DOE suspend site characterization activities at sites other than the Yucca Mountain

site. This decision was not based on a technical evaluation of the three recommended sites or a conclusion that the Hanford and Deaf Smith sites were not technically acceptable. According to sponsors of the legislation, the principal purpose of the requirement to suspend characterization at these sites was to reduce costs. In effect, the NWPA directed DOE to characterize candidate sites sequentially, if necessary, rather than simultaneously. If DOE determines at any time that the Yucca Mountain site is unsuitable, DOE is to terminate all site characterization activities and report to Congress its recommendations for further actions.

The NRC staff has identified numerous issues regarding the Yucca Mountain site that may have a bearing on the licenseability of that site. These issues will have to be resolved during site characterization. An example of a site issue that may bear on the question of suitability is tectonic activity, the folding or faulting of the earth's crust. In the 1984 Waste Confidence Decision, NRC noted that " * * * the potential sites being investigated by DOE are in regions of relative tectonic stability." The authority for this statement came from the Position Statement of the U.S. Geological Survey (USGS). NRC has raised concerns regarding tectonic activity at the Yucca Mountain site in the comments on the draft and final EAs, and in the draft and final Point Papers on the Consultation Draft Site Characterization Plan. If it appears during site characterization that the Yucca Mountain site will be unable to meet NRC requirements regarding isolation of waste, DOE will have to suspend characterization at that site and report to Congress.

DOE's program of site screening in different geologic media was consistent with section 112(a) of the NWPA, which required that DOE recommend sites in different geologic media to the extent practicable. This strategy was to ensure that if any one site were found unsuitable for reasons that would render other sites in the same geologic medium unacceptable, alternate sites in different host rock types would be available. NRC referred to this policy in its 1984 Waste Confidence Decision, when it said, in support of its argument on technical feasibility, that " * * * DOE's program is providing information on site characteristics at a sufficiently large number and variety of sites and geologic media to support the expectation that one or more technically acceptable sites will be identified.

NRC recognizes that simultaneous site characterization is not necessary to identify a repository site that would

meet NRC's technical criteria for isolating wastes. Sequential site characterization does not necessarily preclude or hinder identification of an acceptable site for a repository. NRC did express concern to Congress, on several occasions during deliberations over the proposed legislation, that sequential site characterization could delay considerably the schedule for opening a repository if the site undergoing characterization were found to be unlicenseable. NRC also indicated that this potential for delay would have to be considered by NRC in reevaluating the findings in its Waste Confidence Decision. The impact of this redirection of the high-level waste program on the Commission's Waste Confidence findings is not on the ability to identify technically acceptable sites, but on the timing of availability of technically acceptable sites. Because characterization of multiple sites appears to be more directly related to the timing of repository availability than to the feasibility of geologic disposal, consideration of the above statement in light of the NWPA program redirection will be discussed under Finding 2.

Another question bearing on whether technically acceptable sites can be found is whether compliance with Environmental Protection Agency (EPA) environmental standards for disposal of spent fuel and high-level waste can be demonstrated. These standards, originally promulgated in final form in September 1985, were vacated in July 1987, by the U.S. Court of Appeals, and remanded to EPA for further consideration (see *NRDC v. EPA*, 824 F. 2d 1258). As originally promulgated, the standards set limits on releases of radioactive materials from the site into the accessible environment over a 10,000-year period following disposal. They also required that there be less than one chance in ten that the release limits will be exceeded in 10,000 years, and less than one chance in 1,000 that releases will exceed ten times the limits over 10,000 years.

In past comments on draft and proposed EPA standards, and in related NRC rulemaking efforts, NRC has expressed concern that probabilistic analyses should not be exclusively relied on to demonstrate compliance with EPA release limits. NRC's comments said in part that " * * * [t]he numerical probabilities in [the standards] would require a degree of precision which is unlikely to be achievable in evaluating a real waste disposal system." The comments went on to explain that " * * * identification of the relevant processes and events

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affecting a particular site will require considerable judgment and will not be amenable to accurate quantification, by statistical analysis, of their probability of occurrence." NRC believed then, and continues to believe, that it must make qualitative judgments about the data and methodologies on which the numerical probabilities were based.

In response to NRC concerns, EPA incorporated language into its 1985 standards that appeared to allow flexibility to combine qualitative judgments with numerical probability estimates in a way that might have made implementation of the EPA standards practicable. The text of those standards recognized that "proof of the future performance of a disposal system is not to be had in the ordinary sense of the word" with the substantial uncertainties and very long performance period involved. The 1985 standards emphasized that a "reasonable expectation"—rather than absolute proof—is to be the test of compliance. "What is required," the text of the standards said, "is a reasonable expectation, on the basis of the record * * *, that compliance * * * will be achieved." In an additional attempt to provide flexibility for implementation of the standards, EPA also provided that numerical analyses of releases from a repository were to be incorporated into an overall probability distribution only "to the extent practicable." This phrase appeared to allow some discretion for NRC to incorporate qualitative considerations into its license decision-making, rather than having to rely solely on numerical projections of repository performance. On the strength of these and other EPA assurances, the Commission did not object when the final standards were published in 1985.

Pursuant to the remand by the Federal court in 1987, EPA is currently revising its standards for disposal of spent fuel and high-level waste. The court's decision directed that the remand focus on the ground water and individual protection requirements of the standards. Although the EPA standards are still undergoing development at this time, the Commission does not currently see a sufficient basis to withdraw its confidence in the feasibility of evaluating compliance with such standards. NRC staff will closely monitor the development of repromulgated standards to assure that EPA methodologies for demonstrating compliance with them can be applied by NRC to evaluate DOE's demonstration of compliance.

In sum, considering both past and current programs for characterizing

sites, the Commission concludes that technically acceptable sites for a repository can be found. The Commission is confident that, given adequate time and resources, such sites can be identified, evaluated, and accepted or rejected on their merits, even if no more than one site is undergoing site characterization. This judgment does not rest on the acceptability of the Yucca Mountain site or any one future candidate site.

1.A.2. The Development of Effective Waste Packages

1.A.2.a. *Considerations in developing waste packages.* The NWPA required NRC to promulgate technical requirements and criteria to be applied in licensing a repository for high-level radioactive waste. Under section 121 of the Act, these technical criteria must provide for use of a system of multiple barriers in the design of the repository and such restrictions on the retrievability of waste as NRC deems appropriate. The system of multiple barriers includes both engineered and natural barriers.

The waste package is the first engineered barrier in the system of multiple barriers to radionuclide escape. The waste package is defined as the "waste form and any containers, shielding, packing and other absorbent materials immediately surrounding an individual waste container." Before sinking an exploratory shaft for site characterization, DOE is required to prepare an SCP including a description of the waste form or packaging proposed for use at the repository, and an explanation of the relationship between such waste form or packaging and the geologic medium of the site.

The multiple barrier approach to radioactive waste isolation in a geologic repository is implemented in NRC requirements by a number of performance objectives and by detailed siting and design criteria. The NRC performance objective for the waste package requires substantially complete containment for a period of not less than 300 years nor more than 1,000 years after permanent closure of the repository. The technical design criteria for the waste package require that interaction of the waste package with the environment not compromise performance of the package, the underground facility, or the geologic setting. Therefore, the waste package design must take into account the complex site-specific interactions between host rock, waste package, and ground water that will affect waste package and overall repository performance.

Under the NWPA, DOE was required to suspend site characterization activities at sites other than the Yucca Mountain, NV site. Consequently, DOE has narrowed the range of waste package designs to a design tailored for unsaturated tuff at the Yucca Mountain site. This aspect of the high-level waste program redirection may facilitate and expedite the waste package design process insofar as it enables DOE to concentrate its efforts on developing a single design for a single site instead of three designs for sites in bedded salt, basalt, and unsaturated tuff.

Currently, DOE is evaluating uncertainties in waste package design related to waste form, container type, and environment. The current conceptual design for the waste package is based on several assumptions. The waste form is presumed to be ten-year-old spent fuel or high-level waste in the form of borosilicate glass in stainless-steel canisters. (In addition to spent fuel and high-level waste, the waste form may include greater-than-Class C (GTCC) low-level waste. This waste is not routinely acceptable for near-surface disposal under NRC regulations for disposal of low-level wastes, but is acceptable for disposal in a repository licensed for disposal of spent fuel and high-level wastes. This waste might include such materials as sealed sources and activated metals from the decommissioning of reactors and production facilities.)

Six materials are being considered for fabrication of containers, including austenitic steel (316L), nickel-based alloys (Alloy 825), pure copper (CDA 102), copper-based alloys (aluminum-bronze, CDA-613, and 70-30 Cu-Ni, CDA-715), and a container with a metal outer shell and ceramic liner. The reference container for the spent fuel and high-level waste is a 1.0-cm thick cylinder to be made of American Iron and Steel Institute (AISI) 304L stainless steel. This will be DOE's benchmark material, against which other materials are to be compared. DOE currently intends for spent fuel containers to be filled with an inert gas, such as argon, before being welded closed.

The reference repository location is in the unsaturated tuff of the Topopah Spring Formation underlying Yucca Mountain. According to DOE, little free-flowing water is thought to be present there to contribute to corrosion of the waste containers, although the degree of saturation in this tuff is estimated to be 65 ± 19 percent of the available void space in the rock. DOE has acknowledged, however, that the

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greatest uncertainties in assessing waste package performance at Yucca Mountain stem from difficulty in characterizing and modeling the coupled geochemical-hydrologic processes that represent the interactions between the host rock, waste package, and ground water. The final waste package design will depend on the results of site characterization and laboratory testing to reduce uncertainty in predicting these interactions in the reference repository horizon. The final design will also be shaped by research in understanding the degradation of candidate container materials, and the characteristics of the likely reference waste forms.

Regarding the state of technology for developing long-lived waste package containers, the Swedish Nuclear Fuel and Waste Management Company (SKB), the organization responsible for radioactive waste disposal in Sweden, has described a container for spent fuel rods that consists of a 0.1-m thick copper canister surrounded by a bentonite overpack. The design calls for pouring copper powder into the void spaces in the canisters, compacting the powder using hot-isostatic pressing with an inert gas, and sealing the canisters. SKB estimates that the copper canister waste package has a million-year lifetime. (See also 1.B.3. below.)

As noted in NRC's Final Point Papers on the Consultation Draft Site Characterization Plan, the Commission does not expect absolute proof that 100 percent of the waste packages will have 100 percent containment for 300 to 1,000 years. Since that time, the NRC staff has completed its review of the December 1988 Site Characterization Plan for Yucca Mountain. Although the Commission continues to have concerns about DOE's waste package program, nothing has occurred to diminish the Commission's confidence that as long as DOE establishes conservative objectives to guide a testing and design program, in tuff or in other geologic media if necessary, it is technically feasible to develop a waste package that meets the performance objective for substantially complete containment.

1.A.2.b. *Effect of reprocessing on waste form and waste package.* The Draft 1988 Mission Plan Amendment estimates that a total of about 77,800 metric tons of heavy metal (MTHM) of spent nuclear fuel and high-level radioactive waste will be available for disposal by the year 2020. (This estimate is based on a "no new orders" assumption for commercial nuclear reactors and a 40-year reactor lifetime.) Of this 77,800 MTHM, about 9,400 MTHM will consist of reprocessed

defense waste and a small amount of commercial reprocessed waste from the West Valley Demonstration Project. The decision to locate the defense high-level waste in the repository for wastes from commercial power reactors resulted from the requirement in Section 8 of the NWPA that the President evaluate the possibility of developing a defense-waste-only repository. In February 1985, DOE submitted a report to the President recommending a combined commercial and defense repository. In April 1985, the President agreed that no basis appeared to exist for a defense-only repository and directed DOE to dispose of defense waste in the commercial repository.

About 8,750 MTHM of reprocessed high-level waste from defense facilities at Savannah River, SC, Hanford, WA, and Idaho Falls, ID will be available by 2020 for disposal in the repository, according to the Draft 1988 Mission Plan Amendment. This waste will likely be solidified into a borosilicate glass matrix. About 640 MTHM of reprocessed high-level waste will come from the West Valley Demonstration Project, a facility for wastes from discontinued commercial reprocessing of spent fuel at that site. This reprocessed waste also will be solidified, probably in a borosilicate glass waste form.

Waste-form testing for the Yucca Mountain site is focusing on both spent fuel and reprocessed high-level waste. The performance of the waste form in providing the first barrier to radionuclide migration is being evaluated on the basis of the physical and chemical environment of the waste form after disposal, the performance of the waste container, and the emplacement configuration.

A major limitation on glass waste-form testing is that the actual waste glasses to be disposed of are not available, and their exact composition will not be established until after further testing. Reference waste-glass compositions are being used for studies on the effect of variation in glass composition on performance. (These glass compositions are designed by Savannah River Laboratory (SRL) for defense high-level waste, and by Pacific Northwest Laboratory (PNL) for the commercial high-level wastes to be vitrified under the West Valley Demonstration Project Act.) The reference compositions will be revised when better analyses of the composition of the wastes at SRL and West Valley are available. The test program will seek to establish upper bounds on leaching of important radionuclides, and the extent

to which glass fracturing increases leach rate. Other factors influencing leach rate are temperature, pH of the leaching solution, formation of solid layers on the surface of the waste glass, irradiation, water volume, and chemistry.

It is possible that renewed reprocessing of spent fuel from nuclear power reactors may result in a greater proportion of reprocessed waste to spent fuel than is currently anticipated. Although such a departure from the current plan to dispose of mostly unreprocessed spent fuel in the repository does not appear likely at this time, the Commission believes it is important to recognize the possibility that this situation could change.

The possibility of disposal of reprocessed waste as an alternative waste form to spent fuel assemblies was recognized by the Commission in the 1984 Waste Confidence Decision. The Commission noted that the disposal of waste from reprocessing had been studied for a longer time than the disposal of spent fuel, and that the possibility of reprocessing does not alter the technical feasibility of developing a suitable waste package. The Commission went on to say that there is evidence that the disposal of reprocessed high-level waste may pose fewer technical challenges than the disposal of spent fuel. As long as DOE uses conservative assumptions and test conditions for evaluating the performance of different waste forms against NRC licensing requirements, the Commission has no basis to change its finding that there is reasonable assurance that reprocessing does not reduce confidence in the technical feasibility of designing and building a waste package that will meet NRC licensing requirements in a variety of geologic media.

1.A.3. The Development of Effective Engineered Barriers for Isolating Wastes From the Biosphere

1.A.3.a. *Backfill materials.* At the time of the 1984 Waste Confidence Decision, DOE was developing conceptual designs for backfill in several geologic media. Most candidate sites at that time were in saturated rock, and the conceptual designs included backfilling or packing around waste containers to prevent or delay ground water flow which could enhance corrosion and radionuclide transport near the waste containers. The conceptual design for the engineered barrier system at the Yucca Mountain site has different parameters because the site is unsaturated; instead of backfill or packing around the waste container, there is to be an air gap

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between sides of the waste canister and the host rock.

Backfill material around the container is not required under NRC regulations for the waste package. NRC regulations require that " * * * containment of high-level waste within the waste packages [which includes the container] will be substantially complete for a period to be determined by the Commission * * * provided, that such period shall not be less than 300 years nor more than 1000 years after permanent closure of the repository" (10 CFR 60.113(a)(1)(ii)(B)), and that the entire engineered barrier system meet the release rate performance objective of 1 part in 100,000 per year.

Backfill is also a component of the borehole, shaft, and ramp seals, which are not part of the engineered barrier system or the underground facility. Boreholes, shafts, and ramps must be sealed when the repository is permanently closed. This aspect of backfilling is discussed below under "Development of sealants." Backfill may also include crushed rock used to fill openings such as drifts in the underground facility. At the Yucca Mountain candidate site, DOE currently plans to fill openings in the underground facility at closure of the repository. Backfilling is not planned before repository closure because it is not needed for structural support for the openings, and it would make waste retrieval more difficult. At closure of the facility, however, openings will be backfilled with coarse tuff excavated for the facility. In the conceptual design provided in the SCP, the selection of coarse tuff as backfill material is based on numerical simulations performed by DOE which suggest that coarse tuff would be a more effective barrier to capillary flow in the backfill matrix than fine materials.

DOE's design for the engineered barrier system submitted with the license application will have to contain information sufficient for NRC to reach a favorable conclusion regarding the overall system performance objective. Backfill or packing around waste containers is not required by NRC regulations if DOE can demonstrate that applicable performance objectives can be met without it. If, on the basis of testing and experiments during site characterization, DOE decided that backfill would enhance engineered barrier system performance, the design would have to reflect this conclusion. DOE has already conducted research on a wide variety of candidate materials for backfill around waste packages in a variety of geologic media. The

Commission continues to have confidence that backfill or packing materials can be developed as needed for the underground facility and waste package to meet applicable NRC licensing criteria and performance objectives.

1.A.3.b. *Borehole and shaft seals.* The engineered barrier system described above is limited to the waste package and the underground facility as defined in 10 CFR part 60. The underground facility refers to the underground structure, including openings and backfill materials, but excluding shafts, boreholes, and their seals. Containment and release-rate requirements are specified for the engineered barrier system, but not for the borehole and shaft seals. Seals are covered under 10 CFR 60.112, the overall post-closure system performance objective for the repository. Among other things, this provision requires that shafts, boreholes and their seals be designed to assure that release of radioactive materials to the accessible environment following permanent closure conform to EPA's generally applicable standards for radioactivity. Although the criteria for seals given in 10 CFR part 60 do not specifically mention seals in ramps and the underground facility, it is reasonable to consider them together with borehole and shaft sealants, because the seals and drainage design in ramps and the underground facility could also affect the overall system performance of the geologic repository.

Construction of the exploratory shaft facility (ESF) will be the first major site characterization activity. The ESF will consist of two vertical shafts, one for testing and the other for support, and underground excavations for at-depth testing. The repository surface facilities will be connected to the underground facility by two additional shafts (a men-and-materials shaft and the emplacement area exhaust shaft) and two ramps, a waste ramp for bringing radioactive waste and spent fuel into the repository, and a tuff ramp for removing rock from the underground facility to a tuff pile. In addition to these shafts and ramps, there will be exploratory boreholes for obtaining samples of rock, water, and gases in strata at varying depths. Exploratory boreholes have the potential to provide information on hydrologic properties of the Yucca Mountain site, with emphasis on movement of water in unsaturated tuff. Other properties which will be studied using exploratory boreholes are lithologic, structural, mechanical, and thermal properties of the host rock.

When the repository is decommissioned, NRC expects that most, if not all, shafts, ramps, and boreholes will probably have to be sealed to reduce the possibility that they could provide preferential pathways for radionuclide migration from the underground facility to the accessible environment. DOE estimates that as many as 350 shallow and 70 deep exploratory boreholes may be emplaced by the time site characterization has been completed at the Yucca Mountain site. Decommissioning may not occur for up to 100 years after commencement of repository operations. Because the final design for seals will likely have been modified from the initial license application design (LAD), DOE is viewing the seal LAD as serving two primary functions. As set forth in DOE's SCP for the Yucca Mountain candidate site, the seal LAD is to establish that: (1) " * * * technology for constructing seals is reasonably available;" and (2) " * * * there is reasonable assurance that seals have been designed so that, following permanent closure, they do not become pathways that compromise the geologic repository's ability to meet the post-closure performance objectives."

To establish the availability of technology for seal construction, DOE has identified at least 31 site properties that need to be characterized in determining necessary seal characteristics. These properties include saturated hydraulic conductivity of alluvium near shafts, the quantity of water reaching the seals due to surface-flooding events, and erosion potential in the shaft vicinity. The SCP also discusses material properties that need to be identified to determine sealing components such as initial and altered hydrologic properties of materials.

The SCP indicates that DOE is planning to use crushed tuff and cements in the sealing program at the Yucca Mountain candidate site. The stated advantages of using tuff include minimizing degradation of seal material and avoiding disruption of ambient ground-water chemistry.

DOE's current design concept for meeting the overall performance objectives includes a combination of sealing and drainage. Seal requirements may be reduced in part by: (1) Limiting the amount of surface water that may enter boreholes, shafts, and ramps; (2) selecting borehole, shaft, and ramp locations and orientation that provide long flow paths from the emplaced waste to the accessible environment above the repository; and (3) maintaining a sufficient rate of drainage below the repository horizon level so

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that water can be shunted past the waste packages without contacting them.

Although DOE's program is focusing on seals for the Yucca Mountain candidate site, the Commission finds no basis for diminished confidence that an acceptable seal can be developed for candidate sites in different geologic media. The Commission finds no evidence to suggest that it can not continue to have reasonable assurance that borehold, shaft, ramp, and repository seals can be developed to meet 10 CFR part 60 performance objectives.

1.B. Relevant Issues That Have Arisen Since the Commission's Original Decision

1.B.1 In support of its argument on technical feasibility, the Commission stated in its 1984 Waste Confidence Decision that " * * DOE's program is providing information on site characteristics at a sufficiently large number and variety of sites and geologic media to support the expectation that one or more technically acceptable sites will be identified." The NWPAA required, however, that DOE suspend site-specific site characterization activities under the Nuclear Waste Policy Act of 1982 at all sites other than the Yucca Mountain, NV site.

Under the NWPAA, the DOE program has been redirected to characterize candidate repository sites in sequence rather than simultaneously. If the Yucca Mountain site is found to be unsuitable, DOE must terminate site characterization activities there and provide Congress with a recommendation for future action, such as the characterization of another site. Because characterization of multiple sites now appears to be more directly related to the timing of repository availability than to the technical feasibility of geologic disposal as a concept, consideration of the Commission's aforementioned 1984 statement in light of the NWPAA will be discussed under Finding 2.

1.B.2. What is the relationship, if any of the "S-3 Proceeding" to the current review of the Commission's 1984 Waste Confidence Findings? Would the planned revision of the S-3 rulemaking be affected if the Commission had to qualify its current confidence in the technical feasibility of safe disposal?

In its decision to remand to NRC the questions of whether safe offsite storage would be available to 2007-2009, or, if not, whether spent fuel could be safely stored onsite past those dates, the U.S. Circuit Court of Appeals observed that the issues of storage and disposal of

nuclear waste were being considered by the Commission in an ongoing generic proceeding known as the "S-3" Proceeding.

The S-3 Proceeding was the outgrowth of efforts to address generically the NEPA requirement for an evaluation of the environmental impact of operation of a light water reactor (LWR). Table S-3 assigned numerical values for environmental costs resulting from uranium fuel cycle activities to support one year of LWR operation. NRC promulgated the S-3 rule in April 1974. In July 1976, the U.S. Circuit Court of Appeals found that Table S-3 was inadequately supported by the record regarding reprocessing of spent fuel and radioactive waste management, in part because the Commission, in reaching its assessment, had relied heavily on testimony of NRC staff that the problem of waste disposal would be resolved.

When the U.S. Circuit Court of Appeals issued the remand on what were to become the "Waste Confidence" issues in May 1979, NRC had pending before it the final amended S-3 rule. The Court regarded the resolution of the issue of waste disposal in the S-3 proceeding as being related to the issue raised by the petitioners in the appeals of the NRC decisions on the expansion of spent fuel storage capacity. The Court said that the " * * disposition of the S-3 proceeding, although it has a somewhat different focus, may have a bearing on the pending cases."

The Commission approved the final S-3 rule in July 1979. In October 1979, the Commission issued a Notice of Proposed Rulemaking (NPRM) on the Waste Confidence issues in response to the remand by the Court of Appeals. In the NPRM, the Commission stated that the proceeding would " * * draw upon the record compiled in the Commission's recently concluded rulemaking on the environmental impacts of the nuclear fuel cycle, and that the record compiled herein will be available for use in the general fuel cycle rule update discussed in that rulemaking."

In the final Table S-3 rule issued in 1979, the Commission had said that " * * bedded salt sites can be found which will provide effective isolation of radioactive waste from the biosphere." When the Commission issued the 1984 Waste Confidence Decision, part of the basis for the discussion of waste management and disposal in the August 1979 final S-3 rule had changed. For example, in 1984 the repository program was proceeding under the NWPAA, which required that DOE recommend three sites for site characterization.

Although NRC is preparing to amend the S-3 Table, and add a new appendix

to explain the basis for and significance of the data in the table, it is unlikely that the revisions will have any impact on the Commission's generic findings in the Waste Confidence proceeding. Nor is it likely that this reexamination of the Waste Confidence findings will affect the S-3 rule; the Waste Confidence Proceeding is not intended to make quantitative judgments about the environmental costs of waste disposal. Unless the Commission, in a future review of the Waste Confidence decision, finds that it no longer has confidence in the technical feasibility of disposal in a mined geologic repository, the Commission will not consider it necessary to review the S-3 rule when it reexamines its Waste Confidence findings in the future.

1.B.3. To what extent do developments in spent fuel disposal technology outside of the United States (e.g., Swedish waste package designs) enhance NRC's confidence in the technical feasibility of disposal of high-level waste and spent fuel?

Spent fuel disposal technology is the subject of extensive research investigation in both Europe and North America. Advances in this technology are being communicated to the NRC staff both through bilateral agreements and the presentation of research results at international meetings.

Outside the United States, studies of spent fuel as a waste form are now being conducted primarily in Canada and Sweden, although both France and West Germany have small programs in this area. The Swedish studies have been mainly concerned with boiling water reactor (BWR) spent fuel, whereas the Canadian studies focus on spent fuel from that country's CANDU reactors, which use unenriched uranium in a core immersed in "heavy" water made from deuterium. BWR and CANDU fuel, like pressurized water reactor (PWR) fuel, are uranium dioxide fuels clad in zircaloy. However, the burnup rates for these three fuel types vary considerably. Ongoing research studies on spent fuel include: work on the characterization of spent fuel as a waste form; the corrosion of spent fuel and its dissolution under oxidizing and reducing conditions; the radiolysis of ground water in the near vicinity of the spent fuel, and its effects on the dissolution of the fuel; and the development of models to predict the leaching of spent fuel over long time periods. The results of this work are steadily increasing our understanding of spent fuel as a waste form.

High-level radioactive waste, whether it is spent reactor fuel or waste from reprocessing, must be enclosed in an

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outer canister as part of the waste package. The canister surrounding the waste is expected to prevent the release of radioactivity during its handling at the repository site before emplacement. After emplacement in the repository, it is expected to prevent the release of radioactivity for a specified period of time after the repository is closed, by providing a barrier to protect the waste from coming into contact with the ground water.

For practical reasons, canister materials may be divided into the following classes: (1) Completely or partially thermodynamically stable materials such as copper; (2) passive materials such as stainless steel, titanium, Hastelloy, Inconel, and aluminum; (3) corroding or sacrificial materials such as lead and steel; and (4) non-metallic materials such as alumina and titanium dioxide ceramics and cement.

Sweden has been conducting an extensive canister research program over the past several years. The main canister of interest is copper, but titanium, carbon steel, and alumina and titanium dioxide are also being studied as reasonable alternatives, should unexpected problems be discovered with using pure copper.

The present Swedish canister design is a 100-mm thick copper container (as described previously in section A.2.a.), which is claimed to provide containment, in conjunction with an appropriate backfill material, for a period on the order of one million years. The critical factors for the isolation period for copper canisters are: (1) The presence of corrosive substances such as sulfide ions in the ground water; (2) the possibility of these substances reaching the canister surface; and (3) the degree of inhomogeneity, or pitting, of the resulting corrosion. Studies are continuing to obtain more information on pitting corrosion of copper and on techniques for welding thick-walled copper containers.

Several conceptual designs for canisters for the safe disposal of unprocessed spent fuel have also been developed in Canada. One canister design option is the supported-shell, metal-matrix concept, which involves packing the spent fuel bundles into a thin corrosive-resistant shell and casting the remaining space with a low melting point metal or alloy. Structural support for the shell would be provided by the resulting metal matrix. Lead is a possible matrix material because of its favorable casting properties, cost, and low melting point.

Other supported shell canister concepts include the packed-particulate

and structurally-supported designs. In these designs, a thin outer shell is supported by a particulate material packed around a steel internal structure that contains the spent fuel bundles. Several materials have been identified for the fabrication of the corrosion resistant outer shell, including commercially pure and low-alloy titanium, high nickel-based alloys such as Inconel 625, and pure copper. Detailed designs have been produced for all three types of supported shell canisters incorporating either a titanium or nickel alloy shell less than 6-mm thick. A conceptual design has also been produced for a copper-shell structurally-supported canister and a metal-matrix container with a relatively thick (25-mm) copper shell and a lead matrix material. This last canister is intended to contain 72 used CANDU fuel bundles in four layers of 18 bundles each.

Both the Canadian and Swedish conceptual designs for the disposal of spent fuel in canisters provide for surrounding the canister with backfill material as part of the waste package when it is emplaced in the repository. This backfill material would be packed around the canister to retard the movement of ground water and radionuclides. Investigations of backfill material at the Stripa mine in Sweden have shown that bentonite and silica sand can be employed successfully as backfill, both around the canister and in repository tunnels. A bentonite-silica mixture is the recommended backfill material on the basis of its thermal and mechanical properties. Bentonite backfills have been shown to produce hydraulic conductivities that are very similar to the surrounding granite at Stripa. Problems concerning the variability of bentonite samples from different geographic locations can be eliminated if material from a single source is used. The presence of sulfur and some organic material, including bacteria, in many bentonites poses some problems related to microbially-accelerated corrosion. Treatment with hydrogen peroxide may be used to oxidize these organics. Heating the bentonite to 400 degrees C can also be effective, although this may alter the crystal structure of the bentonite.

Many countries intend to dispose of their high-level radioactive waste by first converting the wastes into a solid, vitrified form after reprocessing. Since the leaching of the waste form by circulating ground water after disposal is the most likely mechanism by which the radionuclides might be returned to the biosphere, the waste form must be composed of a highly stable material with an extremely low solubility in

ground water. Thus, the waste form itself should function as an immobilization agent to prevent any significant release of radionuclides to the biosphere over very long time periods. The two primary materials currently being considered for use as solidified waste forms are borosilicate glass and SYNROC, a man-made titanate ceramic material.

SYNROC was initially developed in Australia as an alternative material to borosilicate glass. It is composed primarily of three minerals (hollandite, zirconolite, and perovskite) which collectively have the capacity to accept the great majority of radioactive high-level waste constituents into their crystal lattice structure. These three minerals, or closely related forms, occur naturally, and have been shown to have survived for many millions of years in a wide range of natural environments. SYNROC has the property of being extremely resistant to leaching by ground water, particularly at temperatures above 100 degrees C. In addition, the capacity of SYNROC to immobilize high-level wastes is not markedly impaired by high levels of radiation damage.

The high leach-resistance of SYNROC at elevated temperatures increases the range of geologic environments in which it may be used, such as deep geologic repositories in both continental and marine environments.

Research and development work on improving SYNROC production technology is currently being done jointly in Australia and Japan. New methods of using metal alkoxides in the fabrication of SYNROC to obtain high homogeneity and lower leachability have recently been developed in Australia. The Japanese have recently developed a new method that uses titanium hydroxide, as a reducing agent to produce SYNROC with a high density and low leach rate. A pilot facility for the production of non-radioactive SYNROC is not in operation in Australia, and a small pilot facility for producing SYNROC with radioactive constituents is being completed in Japan.

On the basis of current information from the foreign studies just described on canisters, spent fuel as a waste form, backfill materials, and alternatives to borosilicate glass waste forms, the Commission concludes that there is no basis for diminished confidence that an acceptable waste package can be developed for safe disposal of high-level waste and spent fuel.

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1.C. Conclusion on Finding 1

The Commission has reexamined the basis for its First Finding in the 1984 Waste Confidence Decision in light of subsequent program developments, and concludes that Finding 1 should be reaffirmed.

The technical feasibility of a repository rests initially on identification of acceptable sites. At this time, the Commission is not aware of any evidence indicating that Yucca Mountain is not acceptable for site characterization. There are many outstanding questions regarding the licenseability of the site, however, and they must be answered satisfactorily in order for NRC to issue a construction authorization for that site. If data obtained during site characterization indicate that the Yucca Mountain site is not suitable for a repository, DOE is required by the NWPAA to terminate site characterization activities and report to Congress. Within six months of that determination, DOE must make a recommendation to Congress for further action to assure the safe, permanent disposal of spent fuel and high-level waste. DOE could recommend, for example, that Congress authorize site characterization at other sites. Considering DOE's investigations of other potentially acceptable sites before its exclusive focus on Yucca Mountain, the Commission has no reason to believe that, given adequate time and program resources, a technically acceptable site cannot be found.

The technical feasibility of geologic disposal also depends on the ability to develop effective engineered barriers, such as waste packages. DOE is currently evaluating six candidate materials for waste containers, including austenitic steel and copper- and nickel-based alloys, and is planning waste-form testing based on both spent fuel and high-level waste in borosilicate glass. On the basis of DOE's program, and results from Swedish investigations of a copper waste container, the Commission is confident that, given a range of waste forms and conservative test conditions, the technology is available to design acceptable waste packages.

In addition to the materials testing for the waste container and waste form, there may be additional measures that can be taken to improve the effectiveness of the engineered barriers. It is known, for example, that the heat-loading characteristics of the wastes diminish with time. Also, the longer wastes are stored before disposal, the smaller will be the quantities of

radionuclides available for transport to the accessible environment.

It is also technically feasible to separate from radioactive wastes the radionuclides that constitute the principal source of heat from the nuclides of greatest long-term concern. The former radionuclides, mainly fission products such as cesium-137 and strontium-90, could then be stored for a period of years while the fission products decay to the point where they could be disposed of either in a manner that does not require the degree of confinement provided by a geologic repository, or in a repository with less concern for thermal disturbance of the host rock's expected waste isolation properties. Meantime, the longer-lived remaining radionuclides, such as transuranic wastes with elements heavier than uranium, could be disposed of in a repository away from the fission products and without the high thermal loadings that would otherwise have to be considered in predicting the long-term waste isolation performance of the geologic setting. France, Great Britain, and Japan are currently pursuing this waste management strategy or a variant of it.

The Commission emphasizes here that it does not believe that recycling technologies are required for the safety or feasibility of deep geologic disposal in the United States. Other countries, such as Canada, the Federal Republic of Germany, and Sweden are pursuing disposal strategies based on a similar view. Reprocessing, if employed in its current stage of development, would result in additional exposures to radiation and volumes of radioactive wastes to be disposed of. For the purpose of finding reasonable assurance in the technical feasibility of geologic disposal, however, it is worth noting that technology is currently available to permit additional engineering control of waste forms if, for reasons not now foreseen, such control were deemed desirable at some future time. Meanwhile, the Commission continues to have confidence that safe geologic disposal is technically feasible for both spent fuel and high-level waste.

DOE's current reference design for the waste package does not include backfill or packing around waste containers in the emplacement boreholes. Neither is required under NRC rules so long as DOE can show that applicable regulatory criteria and objectives will be met. An air gap between the container and the host rock is currently one of the barriers in DOE's design for meeting the performance objective. DOE has conducted investigations on a variety of

candidate materials for backfill in a variety of geologic media, and the Commission finds no basis to qualify its past confidence that backfill materials can be developed, if needed, to meet applicable NRC requirements.

The current reference design for sealing boreholes, shafts, ramps and the underground facility at the Yucca Mountain candidate site employs crushed tuff and cement. Regardless of the geologic medium of the candidate site, DOE will have to show that the license application design meets NRC post-closure performance objectives. The Commission continues to have reasonable assurance that DOE's program will lead to identification of acceptable sealant materials for meeting these objectives.

Overall, from its reexamination of issues related to the technical feasibility of geologic disposal, the Commission concludes that there is reasonable assurance that safe disposal of high-level waste and spent fuel in a mined geologic repository is technically feasible.

Original Finding 2

The Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level waste and spent fuel will be available by the years 2007-2009, and that sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high-level radioactive waste and spent fuel originating in that reactor and generated up to that time.

Proposed Finding 2

The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

2.A. Issues Considered in Commission's 1984 Decision on Finding 2

2.A.1. Finding Technically Acceptable Sites in a Timely Fashion

In order for the Commission to find that any candidate site for a repository is technically acceptable (that is, in compliance with NRC licensing requirements), the site must undergo comprehensive site characterization to assess its hydrologic, geologic, geochemical, and rock mechanics

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properties. It is possible that a site may be found unacceptable on the basis of early in-situ testing or other site characterization activities. It will not be possible, however, for the NRC staff to take a position before a licensing board that a site will meet NRC requirements for construction authorization until the results of all site characterization activities are available. Even then, the staff may conclude that the evidence from site characterization does not constitute reasonable assurance that NRC performance objectives will be met. Also, the results of the licensing hearings on construction authorization cannot be predicted. If construction is authorized and when it is substantially complete, DOE is required to obtain, in addition to the construction authorization permit, a license to receive and possess waste at the geologic repository operations area in order to commence repository operations. These considerations argue for maintaining the ready availability of alternatives sites if, after several years, site characterization or licensing activities bring to light difficulties at the leading candidate site.

In support of its argument on technical feasibility, the Commission stated in its 1984 Waste Confidence Decision that " * * * DOE's program is providing information on site characteristics at a sufficiently large number and variety of sites and geologic media to support the expectation that one or more technically acceptable sites will be identified." At the time, DOE was required under the NWPAA to characterize three candidate repository sites.

The NWPAA had a major impact on DOE's repository program, however. Under the NWPAA, DOE was required to suspend site-specific activities at the Hanford, WA and Deaf Smith County, TX sites, which had been approved by the President for site characterization for the first repository. Redirection of the repository program to single-site characterization (or, if necessary, sequential site characterization if the Yucca Mountain site is found to be unsuitable) will permit DOE to concentrate its efforts and resources on information gathering at a single site, as opposed to spreading out its efforts over a range of sites. The possible schedular benefits to single-site characterization, however, must be weighed for the purposes of this Finding against the potential for additional delays in repository availability if the Yucca Mountain site is found to be unsuitable. By focusing DOE site characterization activities on Yucca Mountain, the NWPAA has essentially made it necessary for that site to be found

suitable if the 2007-2009 timeframe for repository availability in the Commission's 1984 Decision is to be met. Clearly, the Commission cannot be certain at this time that the Yucca Mountain site will be acceptable.

Although Commission has no reason to believe that another technically acceptable site can not be found if the Yucca Mountain site proves unsuitable, several factors raise reasonable doubts as to the availability of even one repository by 2007-2009. These include: (1) The current reliance on a single site with no concurrently available alternatives; (2) the probability that site characterization activities will not proceed entirely without problems; and (3) the history of schedular slippages since passage of the NWPAA. For example, DOE's schedule for the first repository slipped five years (from 1998 to 2003) between January 1983, when the NWPAA was enacted, and January 1987, when the first Draft Mission Plan Amendment was issued. The schedule for excavation of the exploratory shaft for the Yucca Mountain site slipped by more than three years since the issuance of the PDS in March 1986. DOE has cited numerous reasons for past program slippages, including the need for a consultation process with States and Tribes, Congressional actions (e.g., the barring of funds in the 1987 budget appropriation for drilling exploratory shafts), and DOE's recognition that the EIS and license application would require more technical information than previously planned.

Given this history of delays, and given its understanding of current developments, the Commission can not be sure that current milestones for the repository program will be met, at least in the foreseeable future. For example, DOE has taken the position, with which NRC agrees, that sinking of exploratory shafts should not occur before it has a qualified quality assurance (QA) program in place. The Commission believes that the aggressive, success-oriented schedule for this milestone has not allowed for unexpected developments. Indeed, the effort to develop an approvable QA program has in itself identified problems in design control and other processes that must be resolved in order to establish a fully-qualified program that addresses all applicable NRC licensing requirements.

Thus, although the NWPAA is a clear and strong reaffirmation of Congressional support for the timely development of a repository, the Commission in this Waste Confidence review cannot ignore the potential for delay in repository availability if the

Yucca Mountain site, or any other single site designated for site characterization, is found to be unsuitable. Without alternative sites undergoing simultaneous characterization or even surface-based testing, DOE will have to begin characterizing another site if the site currently selected for characterization proves unsuitable. The earlier a determination of unsuitability can be made, the smaller the impact of such a finding would be on the overall timing of repository availability.

DOE has estimated conservatively that it would require approximately 25 years to begin site screening for a second repository, perform site characterization, submit an EIS and license applications, and await authorizations before the repository could be ready to receive waste. In its June 1987 Mission Plan amendment, DOE stated "It * * * seems prudent to plan that site-specific screening leading to the identification of potentially acceptable sites should start about 25 years before the start of waste acceptance for disposal." DOE went on to say that it considered this estimate to be conservative because it does not account for expected schedular benefits from the first repository program, including improvements in such areas as site screening, site characterization, and performance assessment techniques.

Although DOE's estimate was permitted on the successful completion of a program for the first of two repositories, schedular benefits from improvements in the understanding of waste isolation processes would still be available. The glass waste form from the Defense Waste Processing Facility now under construction at Savannah River, SC, for example, will be available for testing under simulated repository conditions well before the turn of the century under current DOE schedules, and improvements in the modelling of spent fuel behavior within waste canisters can be applied in performance assessments largely irrespective of the geology of a site. It may also be pertinent that when DOE made its 25-year estimate for the second repository program in mid-1987, the law at the time required the simultaneous characterization of three sites, so that DOE could not proceed to develop one site for a repository until the completion of characterization at the site that required the most time.

Although it is still possible for a repository to be available by 2007-2009 if the current schedule does not incur major additional delays, the Commission does not believe it would be prudent to reaffirm the Agency's 1984

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finding of reasonable assurance that the 2007–2009 timetable will be met. As the Court of Appeals noted in remanding this issue to NRC, the ultimate determination of whether a disposal facility will be available when needed “* * * can never rise above a prediction.” The Commission is in the position of having to reach a definitive finding on events which are almost two decades away. We believe that the institutional timescale for this question can more realistically be framed in decades than in years. As the program proceeds into the next century, it will become easier for NRC to make more definitive assessments, if necessary, of the time a repository will be available.

It should be noted here that the basis for the 2007–2009 timeframe in the Court remand on the “Waste Confidence” issues has changed in the past five years. These dates no longer represent the expected dates of expiration of the Vermont Yankee and Prairie Island facilities. When the operating licenses were originally issued for nuclear power reactors, license durations were computed on the basis of a 40-year operating lifetime starting from the date of the construction permit (CP) for the facility. For many facilities, five years or more elapsed from the date of issuance of the CP until issuance of the operating license (OL). In response to requests from utilities, the NRC staff has agreed to extend the dates of expiration of the OLs by computing the 40-year period of the license from the date of issuance of the OL instead of from the date of the CP. The NRC staff has already changed the expiration date for Prairie Island Units 1 and 2 from the year 2008 to the years 2013 and 2014. The staff currently expects Vermont Yankee to request a change in its current expiration date of December 11, 2007. On the basis of the date of issuance of the OL for Vermont Yankee, it is eligible for extension of its operating license expiration to March 2012. Therefore, if the remand were to occur today, NRC would likely be evaluating the availability of a repository by 2012–2014, as these years are expected to represent the timeframe in which the OLs of the Vermont Yankee and Prairie Island facilities are due to expire.

In light of all these considerations, the Commission believes it can have reasonable assurance that at least one repository will be available within the first quarter of the twenty-first century. This estimate is based on the time it would take for DOE to proceed from site screening to repository operation at a site other than Yucca Mountain, if this should prove necessary. Assuming for

the sake of conservatism that Yucca Mountain would not be found suitable for repository development, it is reasonable to expect that DOE would be able to reach this conclusion by the year 2000. This would leave 25 years for the attainment of repository operations at another site.

2.A.2. Timely Development of Waste Packages and Engineered Barriers

DOE's current conceptual design for the waste package is discussed in the SCP for the Yucca Mountain site. As information is obtained from site characterization activities and laboratory studies, the conceptual design will evolve in successive stages into the Advanced Conceptual Design (ACD), the LAD, and the final procurement and construction design. DOE has identified four areas of investigation related to the waste package LAD: (1) Waste package environment; (2) waste form and materials testing; (3) design, analysis, fabrication, and prototype testing; and (4) performance assessment. Numerous uncertainties exist in each of these areas. DOE's testing program will attempt to reduce uncertainties in these areas where possible. For example, *in-situ* testing is expected to decrease significantly uncertainties regarding the repository host rock mass in which the waste packages will be emplaced. In the area of performance assessment, however, where results of relatively short-term testing of complex rock-waste-ground water interactions must be extrapolated over as many as 10,000 years, it may be necessary to rely more heavily on the use of simplifying assumptions and bounding conditions than in other areas of investigation.

As discussed under Finding 1, the Commission continues to have reasonable assurance that waste packages and engineered barriers can be developed which will contribute to meeting NRC performance objectives for the repository. The timing of availability of a complete and high quality waste package and engineered barrier LAD, specifically their availability on a schedule which would permit repository operation by 2007–2009, is more difficult to assess at this time. In contrast with the technical feasibility issues discussed under Finding 1, development of acceptable waste packages and engineered barriers for a repository in the 2007–2009 timeframe does depend on the overall acceptability of the Yucca site. If the site is found to be unsuitable, waste package and engineered barrier development will have to begin for a different site, because, under the NWPA, DOE may not carry out site

characterization and waste package development work at sites other than the Yucca Mountain site.

Although much of the work related to waste form, materials, and performance assessment for the waste package can proceed independently of *in-situ* testing, the investigations related to waste package environment depend on the schedule for this testing. DOE's current schedule calls for completing the ACD for the waste package in 1992, and the waste package LAD in 1994. The ability to meet these dates will depend on whether DOE is able to resolve outstanding QA issues which have impeded shaft sinking and *in-situ* testing.

In sum, the Commission is not aware of any scientific or technical problems so difficult as to preclude development of a waste package and engineered barrier for a repository at Yucca Mountain to be available within the first quarter of the twenty-first century. Moreover, even given the uncertainty regarding the ultimate finding of site acceptability, and the uncertainty concerning the range of site-related parameters for which the engineered facility and waste package will have to be designed, the Commission finds reasonable assurance that waste package and engineered barrier development can be completed on a schedule that would permit repository operation within the first quarter of the twenty-first century. If necessary (that is, if Yucca Mountain were found unsuitable late in the program), DOE could initiate site characterization and develop waste packages and engineered barriers at another site or sites and still commence operation before the end of the first quarter of that century.

2.A.3. Institutional Uncertainties

2.A.3.a. *Measures for dealing with Federal-State-local concerns.* In its 1984 Waste Confidence Decision, the Commission found that the NWPA should help to minimize the potential that differences between the Federal Government and States and Indian tribes will substantially disrupt or delay the repository program. The Commission noted that the NWPA reduced uncertainties regarding the role of affected States and tribes in repository site selection and evaluation. The Commission also said that the decision-making process set up by the NWPA provides a detailed, step-by-step approach that builds in regulatory involvement, which should also provide confidence to States and tribes that the program will proceed on a technically sound and acceptable basis. Despite the

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expected and continuing State opposition to DOE siting activities, the Commission has found no institutional developments since that time that would fundamentally disturb its 1984 conclusions on this point.

NRC regulatory involvement, for example, has indeed been built into the process. DOE has continued its interactions with NRC regarding repository program activities since the Commission's 1984 Waste Confidence decision was issued. NRC provided comments to DOE on major program documents such as the Siting Guidelines and the PDS as required by the NWPAA, and NRC concurred on those documents. NRC also reviewed and provided comments to DOE on the DEAs and FEAs. In the December 22, 1986 letter to DOE on the FEAs, the NRC staff noted that "significant efforts were made by DOE to respond to each of the NRC staff major comments on the DEAs, and in fact, many of these comments have been resolved." NRC provided comments to DOE on the 1987 Draft Mission Plan Amendment, and DOE responded to most of these comments in the Final Mission Plan Amendment provided to Congress on June 9, 1987.

Since enactment of the NWPAA in December 1987, DOE-NRC interactions have focused on the Yucca Mountain site. In January 1988, DOE issued the Consultation Draft Site Characterization Plan (CDSCP) for the Yucca Mountain site. The NRC staff provided comments in the form of draft and final "point papers" on the CDSCP. The NRC comments included several objections related to: (1) The failure to recognize the range of alternative conceptual models of the Yucca Mountain site; (2) the status of the quality assurance (QA) plans for site characterization activities; and (3) concerns related to the exploratory shaft facility. Although the December 1988 SCP shows improvement over the CDSCP, NRC continues to have an objection involving the need for implementing a baselined QA program before beginning site characterization and an objection involving the need for DOE to demonstrate the adequacy of both the ESF design and the design control process. DOE is committed to having a qualified QA program in place before sinking the exploratory shaft at the Yucca Mountain site.

DOE has also taken measures to clarify and institutionalize the roles of other Federal agencies in addition to NRC. In the Draft 1988 Mission Plan Amendment, DOE described interactions with these agencies. DOE has a Memorandum of Understanding (MOU) with the Mine Safety and Health

Administration of the Department of Labor for technical support and oversight for shaft construction and other site characterization activities, and with the Department of Transportation to define the respective responsibilities of the two agencies in the waste disposal program. DOE also has interagency agreements with the Bureau of Mines and the U.S. Geological Survey of the Department of the Interior.

DOE's efforts to address the concerns of States, local governments, and Indian tribes have met with mixed results. For example, DOE has not succeeded in finalizing any consultation and cooperation (C&C) agreements as required under Section 117(c) of the NWPAA, as amended. These agreements were to help resolve State and Tribal concerns about public health and safety, environmental, and economic impacts of a repository. Publication of the Siting Guidelines under section 112(a) of the NWPAA resulted in numerous lawsuits challenging the validity of the Guidelines. Similarly, the FEAs were challenged in the Ninth Circuit by affected States and tribes.

The NWPAA did not curtail financial assistance to affected States and tribes, except to redefine and redistribute it if DOE and a State or tribe enter into a benefits agreement. The State of Nevada and affected local governments are currently receiving financial assistance. DOE has attempted to negotiate an agreement with the State of Nevada for monetary benefits under section 170 of the NWPAA. This section would provide for payments of \$10 million per year before receipt of spent fuel, and \$20 million per year after receipt of spent fuel until closure of the repository. These payments would be in addition to certain monetary benefits for which the State is eligible under the NWPAA, as amended. Also under a benefits agreement, a Review Panel would be constituted for the purpose of advising DOE on matters related to the repository, and for assisting in the presentation of State, tribal, and local perspectives to DOE. The beneficiary to a benefits agreement must waive its right to disapprove the recommendation of the site for a repository and its rights to certain impact assistance under sections 116 and 118 of the NWPAA, as amended. To date, the State of Nevada has declined DOE's offer to negotiate a benefits agreement.

The NWPAA introduced several new organizational entities to the repository program with responsibilities that may contribute to resolving concerns of Federal, State, and local governments involved in the program. Under section

503 of the NWPAA, the Nuclear Waste Technical Review Board (NWTRB) is to evaluate the technical and scientific validity of DOE activities under the NWPAA, including site characterization and activities related to packaging or transportation of spent fuel. The NWPAA also established the Office of Nuclear Waste Negotiator, who is to seek to negotiate terms under which a State or Indian tribe would be willing to host a repository or MRS facility at a technically qualified site. Among the duties of the Negotiator is consultation with Federal agencies such as NRC on the suitability of any potential site for site characterization.

At the time of this writing, the President has not appointed the Negotiator. On February 24, 1989 Congressman Morris K. Udall and Senator J. Bennett Johnston requested that the President take action to appoint an individual to this office. A Negotiator could contribute to the timely success of the repository program by providing an alternative site to the Yucca Mountain site that would still have to be technically acceptable, but that would enjoy the advantage of reduced institutional uncertainties resulting from opposition to State or affected Indian tribes.

An additional measure which may facilitate documentation and communication of concerns related to a repository is the Licensing Support System (LSS). The LSS is to provide full text search capability of and easy access to documents related to the licensing of the repository. Although the primary purpose of the LSS is to expedite NRC's review of the construction authorization application for a repository, it will be an effective mechanism by which all LSS participants, including the State and local governments, can acquire early access to documents relevant to a repository licensing decision. DOE has the responsibility for designing the LSS and bearing the costs associated with it, and NRC will be responsible for implementing it.

Procedures for the use of the LSS are part of revisions to 10 CFR Part 2, NRC's Rules of Practice for the adjudicatory proceeding on the application to receive and possess waste at a repository. These revisions were the result of a "negotiated rulemaking" process in which affected parties meet to reach consensus on the proposed rule. The members of the negotiating committee included: DOE; NRC; State of Nevada; coalition of Nevada local governments; coalition of industry groups; and a coalition of national environmental groups. The coalition of industry groups

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dissented on the final text of the proposed rule, but the negotiating process enabled NRC to produce a proposed rule reflecting the consensus of most of the interested parties on an important repository licensing issue.

NRC is committed to safe disposal of radioactive waste and the protection of public health and safety and the environment. Any State with a candidate site for a repository should be assured that a repository will not be licensed if it does not meet NRC criteria. NRC has its own program for interaction with the State of Nevada and affected units of local government, and will continue to provide information to Nevada and consider State concerns as requested.

Given the difficult nature of siting a repository, the Commission believes that the NWPAA, as amended, has achieved the proper balance between providing for participation by affected parties and providing for the exercise of Congressional authority to carry out the national program for waste disposal. The NWPAA provides adequate opportunity for interaction between DOE and other Federal agencies, States, tribes, and local governments such that concerns can be presented to DOE for appropriate action. Both the NRC and the State or tribe can exercise considerable prerogative regarding repository development. The State or tribe may disapprove the recommendation that the site undergo repository development. This disapproval can be overridden only by vote of both houses of Congress within 90 days of continuous session. If the State disapproval is overridden, DOE may submit an application for authorization to construct the repository, and, if approved, a subsequent application to receive and possess waste for emplacement. NRC will make decisions on the license applications according to the requirements of its statutory mission. Despite the complexity of the overall process and the strong views of the participants in it, the Commission sees no compelling reason to conclude that current institutional arrangements are inadequate to the task of resolving State, Federal, and local concerns in time to permit a repository to be available within the first quarter of the twenty-first century.

2.A.3.b. Continuity of the management of the waste program. At the time the Commission issued its 1984 Waste Confidence Decision, the possibility that DOE functions would be transferred to another Federal agency was cited as the basis for concerns that the resolution of

the radioactive waste disposal problem would likely undergo further delays. The Commission responded that in the years since the Administration had proposed to dismantle DOE in September 1981, Congress had not acted on the proposal. The Commission further stated that even if DOE were abolished, the nuclear waste program would simply be transferred to another agency. The Commission did not view the potential transfer in program management as resulting in a significant loss of momentum in the waste program. The commission also concluded that the enactment of the NWPAA, which gave DOE lead responsibility for repository development, further reduced uncertainties as to the continuity of management of the waste program.

Section 303 of the NWPAA did, however, require the Secretary of Energy to " * * * undertake a study with respect to alternative approaches to managing the construction and operation of all civilian radioactive waste facilities, including the feasibility of establishing a private corporation for such purpose." To carry out this requirement, DOE established the Advisory Panel on Alternative Means of Financing and Managing Radioactive Waste Facilities, which came to be known as the "AMFM" Panel. The Panel's final report, issued in December 1984, concluded that several organizational forms are more suited than DOE for managing the waste program, including an independent Federal agency or commission, a public corporation, and a private corporation. The report identified a public corporation as the preferred alternative on the basis of criteria developed by the Panel for an acceptable waste management organization. In particular, the report indicated that a public corporation would be stable, highly mission-oriented, able to maintain credibility with stakeholders, and more responsive to regulatory control than a Federal executive agency.

Commenting on the AMFM Panel's report in April 1985, DOE recommended retaining the present management structure of the waste program at least through the siting and licensing phase of the program. Congress did not take action to implement the Panel's recommendations, and DOE's management of the waste program has remained uninterrupted.

By enacting the NWPAA, Congress effectively reaffirmed DOE's continued management of the waste program. Congress did not revise DOE's role as the lead agency responsible for development of a repository and an

MRS. Congress did establish several new entities for the purpose of advising DOE on matters related to the waste program, such as the NWTRB and the Review Panel, to be established if DOE and a State or tribe enter into a benefits agreement under section 170 of the NWPAA. Congress provided further indication of its intent that DOE maintain management control of the waste program for the foreseeable future in requiring, under section 161, that the Secretary of DOE " * * * report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository."

This is not to say, however, that there have been no management problems in the DOE program. Since the enactment of the NWPAA in 1983, only one of the five Directors of DOE's Office of Civilian Radioactive Waste Management (OCRWM) has held the position on a permanent basis. Inadequate progress toward an operating repository has concerned several Congressional observers, including Senator J. Bennett Johnston, Chairman of the Senate Energy and Natural Resources Committee. In February 1989 confirmation hearings for then-Secretary-of-Energy-designate James Watkins, Senator Johnston strongly criticized mounting cost projections and lack of progress in the program, and called for new and stronger management.

Whether the management structure of the repository development program should in fact be changed is a decision best left to others. The Commission believes that a finding on the likely availability of a repository should take management problems into account, but finds no basis to diminish the degree of assurance in its 1984 conclusion on this issue. Events since the submission of the AMFM Panel report do not indicate that there will be a fundamental change in the continuity of the management structure of the program any time soon. In addition, it cannot be assumed that the program would encounter significantly less difficulty with a new management structure than it would continuing under the present one. Under either scenario, however, the Commission believes it would be more prudent to expect repository operations after the 2007-2009 timeframe than before it. Neither the problems of a new management structure nor those of the existing one are likely to prevent the achievement of repository operations within the first quarter of the next century, however.

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2.A.3.c. Continued funding of the nuclear waste management program. Section 302 of the NWPA authorized DOE to enter into contracts with generators of electricity from nuclear reactors for payment of 1.0 mill (0.1 cent) per kilowatt-hour of net electricity generated in exchange for a Federal Government commitment to take title to the spent fuel from those reactors. In the 1984 Waste Confidence Decision, the Commission noted that all such contracts with utilities had been executed. After the 1984 Decision, then-President Reagan decided that defense high-level wastes are to be collocated with civilian wastes from commercial nuclear power reactors. DOE's Office of Defense Programs is to pay the full cost of disposal of defense waste in the repository.

DOE is required under section 302(a)(4) of the NWPA, as amended, " * * * annually [to] review the amount of the fees * * * to evaluate whether collection of the fees will provide sufficient revenues to offset the costs * * * ." In the June 1987 Nuclear Waste Fund Fee Adequacy Report, DOE recommended that the 1.0 mill per kilowatt-hour fee remain unchanged. This assessment was based on the assumption that an MRS facility would open in 1998, the first repository would open in 2003, and the second repository in 2023. These assumptions do not reflect changes in the waste program brought about by the NWPA enacted in December 1987. Two such changes with significant potential impacts were the suspension of site-specific activities related to the second repository until at least 2007, and the linkage between MRS construction and operation and the granting of a repository construction authorization, which will probably occur no earlier than 1998.

According to the Draft 1988 Mission Plan Amendment, DOE should currently be preparing the 1988 fee-adequacy analysis on the basis of the changes to the waste program brought about by the NWPA. The new fee adequacy report will reflect overall program cost savings to the utilities resulting from: (1) Limiting site characterization activities to a single site at Yucca Mountain, NV; and (2) the DOE Office of Defense Programs' sharing other program costs with generators of electricity " * * * on the basis of numbers of waste canisters handled, the portion of the repository used for civilian or defense wastes, and the use of various facilities at the repository," in addition to paying for activities solely for disposing of defense wastes. An additional factor which may eventually also contribute to the overall

adequacy of Nuclear Waste Fund fees is the likelihood that a significant number of utilities will request renewals of reactor operating lifetimes beyond their current OL expiration dates. OL renewal would provide additional time during which Nuclear Waste Fund fees could be adjusted, if necessary, to cover any future increase in per-unit costs of waste management and disposal.

The Commission recognizes the potential for program cost increases over estimates in the 1987 Nuclear Waste Fund Fee Adequacy Report. If there is a significant delay in repository construction, for example, it is reasonable to assume that construction costs will escalate. There may also be additional costs associated with at-reactor dry cask storage of spent fuel, if DOE does not have a facility available to begin accepting spent fuel by the 1998 date specified in the NWPA. These costs would be further increased if one or more licensees were to become insolvent and DOE were required to assume responsibility for storage at affected reactors before 1998.

The full impact of the program redirection resulting from the NWPA and the outlook for the timing of repository availability will continue to be assessed annually. If it does appear that costs will exceed available funds, there is provision in the NWPA for DOE to request that Congress adjust the fee to ensure full-cost recovery. Thus, the Commission finds no reason for changing its basic conclusion that the long-term funding provisions of the Act should provide adequate financial support for the DOE program.

2.A.3.d. DOE's schedule for repository development. At the time that the 1984 Waste Confidence Decision was issued, the Nuclear Waste Policy Act of 1982, enacted in January 1983, had been in effect for less than 20 months. The NWPA had established numerous deadlines for various repository program milestones. Under section 112(b)(1)(B), the NWPA set the schedule for recommendation of sites for characterization no later than January 1, 1985. Section 114(a)(2) specified that no later than March 31, 1987, with provision for a 12-month extension of this deadline, the President was to recommend to Congress one of the three characterized sites qualified for an application for repository construction authorization. Under section 114(d), NRC was to issue its decision approving or disapproving the issuance of a construction authorization not later than January 1, 1989, or the expiration of three years after the date of submission of the application, whichever occurs

later. Section 302(a)(5)(B) required that contracts between DOE and utilities for payments to the Waste Fund provide that DOE will begin disposing of spent fuel or high-level waste by January 31, 1998.

In little more than a year after enactment, the schedule established by the NWPA began proving to be optimistic. In the reference schedule for the repository presented in the April 1984 Draft Mission Plan, for example, DOE showed a slip from January 1989 to August 1993 for the decision on construction authorization.

In the 1984 Waste Confidence Decision, the Commission recognized the possibility of delay in repository availability beyond 1998, and did not define its task as finding confidence that a repository would be available by the 1998 milestone in the NWPA. The Commission focused instead on the question of whether a repository would be available by the years 2007-2009, the date cited in the court remand as the expiration of the OLs for the Vermont Yankee and Prairie Island reactors. The NRC believed that the NWPA increased the chances for repository availability within the first few years of the twenty-first century, by specifying the means for resolving the institutional and technical issues most likely to delay repository completion, by establishing the process for compliance with NEPA, and by setting requirements for Federal agencies to cooperate with DOE in meeting program milestones. Finding that no fundamental technical breakthroughs were necessary for the repository program, the Commission predicted that " * * * selection and characterization of suitable sites and construction of repositories will be accomplished within the general time frame established by the Act [1998] or within a few years thereafter."

In January 1987, DOE issued a Draft Mission Plan Amendment to apprise Congress of significant developments and proposed changes in the repository program. In the Draft Amendment, DOE announced a five-year delay in its schedule for repository availability from the first quarter of 1998 to the first quarter of 2003. DOE's reasons for the delay included the need for more time for consultation and interaction with States and Tribes, the requirement in DOE's 1987 budget the funds not be used for drilling exploratory shafts in 1987, and the need for more information than previously planned for site selection and the license application. The 1987 Draft Mission Plan Amendment set the second quarter of 1988 as the new date for exploratory shaft construction at the

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Yucca Mountain Site. When the final 1987 Mission Plan Amendment was submitted to Congress in June 1987, the schedule for shaft sinking at the Yucca Mountain site had slipped six months to the fourth quarter of 1988. Congress did not take action to approve the June 1987 Mission Plan Amendment as DOE had requested.

On December 22, 1987, the NWPA was enacted. The NWPA has its major impact on the repository program in suspending site characterization activities at the Hanford and Deaf Smith County sites and authorizing DOE to characterize the Yucca Mountain site for development of the first repository.

DOE subsequently issued the Draft 1988 Mission Plan Amendment in June 1988, to appraise Congress of its plans for implementing the provisions of the NWPA. In the Draft 1988 Mission Plan Amendment, DOE's schedule for shaft sinking at Yucca Mountain had slipped another six months to the second quarter of 1989. At this writing, the schedule for shaft sinking is November 1989, but NRC and DOE have agreed that DOE must first have a qualified QA program in place. DOE efforts to date to qualify its QA program have revealed issues requiring DOE attention before shaft excavation can begin, and it is possible that additional issues affecting DOE's readiness will come to light.

Realistically, as the date for shaft sinking slips, the date for repository operation must be adjusted to reflect this slip. This might not be the case if the original schedule had provided for periods of time between critical milestones that could absorb delays without affecting the schedule for repository operation. This is not the case with the schedule for the repository. The repository schedule has always been aggressive and highly success-oriented. In comments on the Draft 1988 Mission Plan Amendment, the Commission noted that the schedule has not allowed adequately for contingencies, and that, given the compression in the schedule for near-term program milestones, DOE has not shown how it will be able to meet the 2003 milestone for repository operation.

Another potential source of delay in repository availability may arise from NRC regulations. The Commission believes that current NRC rules are fully adequate to permit DOE to proceed to develop and submit a repository license application, but further clarification of these rules is desirable to reduce the time needed to conduct the licensing proceeding itself. In order to meet the three-year schedule provided in the NWPA for a Commission decision on repository construction authorization,

the NRC staff has undertaken to refine its regulatory framework on a schedule that would still permit DOE to prepare and submit an application for repository construction authorization under its current schedule. The Commission fully expects to avoid delaying DOE's program, while working to reduce the uncertainties in NRC regulatory requirements that could become contentions in the licensing proceeding. Even if there are any delays resulting from a need for DOE to accommodate more specific regulatory requirements in its site characterization or waste package development programs, however, the Commission is confident that the time savings in the licensing proceeding will more than compensate for them.

In view of the delays in exploratory shaft excavation since the 2003 date for repository availability was set, it may be optimistic to expect that Phase 1 of repository operations will be able to begin by 2203. As DOE's schedule for repository availability as slipped a year and half since the date was changed from 1998 to 2003, the earliest date for repository availability would probably be closer to 2005.

An institutional issue that may further affect DOE's schedule is the status of EPA standards for disposal of spent fuel and high-level waste. These standards are required under section 121(a) of the NWPA. Under 10 CFR 60.112, NRC's overall postclosure system performance objective, the geologic setting shall be selected and the engineered barrier system, which includes the waste package, must be designed to assure that releases of radioactive materials to the accessible environment, following permanent closure, conform to EPA's standards. 40 CFR part 191, the EPA standards, first became effective in November 1985. In July 1987, the U.S. Court of Appeals for the First Circuit vacated and remanded to EPA for further proceedings subpart B of the high-level radioactive waste disposal standards. As noted under the aforementioned 1.A.1., the standards have not been reissued.

A significant modification in the reissued EPA standard may affect the schedule for completing the design of the waste package and engineered barrier to the extent that design testing is planned to demonstrate compliance with the standards. DOE's current site characterization plans for demonstrating compliance with 40 CFR part 191 are based on the standards as promulgated in 1985. DOE is proceeding to carry out its testing program developed for the original EPA standards. DOE has stated that if the EPA standards are changed

significantly when they are reissued, DOE will reevaluate the adequacy of its testing program.

The Commission believes that DOE's approach is reasonable. Much of the information required to demonstrate compliance with the EPA standards is expected to remain the same regardless of the numerical level at which each standard is set. Considering the importance of developing the repository for waste disposal as early as safely practicable, it would be inappropriate for DOE to suspend work on development of engineered barriers pending reissuance of the standards, unless EPA had given clear indications of major changes in them.

Another possibility is that, regardless of any changes in the repromulgated EPA standards, they will be litigated in Federal court. Even if this proves to be the case, however, the Commission believes that any such litigation will still permit EPA to promulgate final standards well within the time needed to enable DOE to begin repository operations at any site within the first quarter of the twenty-first century.

Given the current pace of the DOE program, and assuming that the QA program can be qualified and shaft excavation begun within the next year, the Commission finds it is still possible, though less likely, that a repository at Yucca Mountain will be available by 2007-2009. To the extent that the expiration of the OLs for Prairie Island and Vermont Yankee continue to be relevant in this proceeding, the Commission believes it is more likely that a repository will be available by the anticipated dates of extension of the OLs for those plants in 2012-2014. If DOE determines that the Yucca Mountain site is unsuitable, the Commission considers it reasonable to expect that DOE could make this determination by the year 2000 and have a repository at another site available within the first quarter of the next century.

2.B. Relevant Issues That Have Arisen Since the Commission's Original Decision

2.B.1. NRC stated in 9-14-87 correspondence to Sen. Breaux on pending nuclear waste legislation that under a program of single site characterization, " * * * there may be a greater potential for delay of ultimate operation of a repository than there is under the current regime where three sites will undergo at-depth characterization before a site is selected." To what extent does the NWPA raise uncertainty about the identification of a technically acceptable

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site and potential delay in repository availability by limiting site characterization to a single candidate site (Yucca Mt.) and by raising the possibility that a negotiated agreement might influence repository site selection? Does this uncertainty affect confidence in the availability of a repository by 2007–2009?

In providing comments to Congress on proposed amendments to the NWPA, NRC took the position that simultaneous site characterization of three sites, as required by the NWPA, was not necessary to protect public health and safety. NRC further stated that the adequacy of a site for construction authorization would ultimately be determined in a licensing proceeding, and that NRC would only license a site that satisfied NRC licensing requirements. As described next, the Commission believes that the NWPA contains numerous provisions to ensure that a technically acceptable site will be identified.

The NWPA does not reduce the scope of site characterization activities that DOE is authorized to undertake. The Amendments Act establishes a Nuclear Waste Technical Review Board composed of individuals recommended by the National Academy of Sciences and appointed by the President to evaluate the scientific validity of DOE activities, including site characterization activities, and to report its findings at least semiannually to Congress and DOE. The Amendments Act also provides funding for technical assistance to States, tribes, and affected units of local government. Finally, section 160(1) of the NWPA provides that "Nothing in this Act shall be construed to amend or otherwise detract from the licensing requirements of the NRC established in Title II of the Energy Reorganization Act of 1974 (42 U.S.C. 5841 *et seq.*)." In providing for these reviews and in reaffirming NRC's licensing authority, the NWPA ensures that a candidate site for a repository must satisfy all NRC requirements and criteria for disposal of high-level radioactive wastes in licensed geologic repositories.

Section 402 of the NWPA establishes the Office of the Nuclear Waste Negotiator. The duty of the Negotiator is to attempt to find a State or tribe willing to host a repository or MRS at a technically qualified site. The Negotiator may solicit comments from NRC, or any other Federal agency, on the suitability of any potential site for site characterization. Section 403(d)(4) strengthens the Commission's confidence that a technically acceptable

site will be identified by providing that DOE may construct a repository at a negotiated site only if authorized by NRC. Given these safeguards on selection of a technically acceptable site, the Commission does not consider that the possibility of a negotiated agreement reduces the likelihood of finding a technically qualified site.

The Commission raised the concern as early as April 1987 that under a program of single-site characterization, there could be considerable delay while characterization was completed at another site or slate of sites if the initially chosen site were found inadequate. By terminating site characterization activities at alternative sites to the Yucca Mountain site, the NWPA has had the effect of increasing the potential for delay in repository availability if the Yucca Mountain site proves unsuitable. The provision of the NWPA for a Negotiator could reduce the uncertainty and associated delay in restarting the repository program by offering an alternate to the Yucca Mountain site; but at the time of this writing, a Negotiator has not been appointed.

It should be noted here that the repository program redirection under the NWPA does not, *per se*, have a significant impact on the Commission's assurance of repository availability by 2007–2009. The Commission's reservations about reaffirming this timeframe derive from other considerations, including delays in sinking shafts and the potential for other delays in meeting program milestones, that would have arisen without the NWPA.

The Amendments Act does, however, effectively make it necessary that Yucca Mountain be found suitable if the 2007–2009 timeframe is to be met; this target period would almost certainly be unachievable if DOE had to begin screening to characterize and license another site. Thus, confidence in repository availability by 2007–2009 implies confidence in the suitability of Yucca Mountain. The Commission does not want its findings here to constrain in any way its regulatory discretion in a licensing proceeding. The Commission has therefore concluded that even if the program were on schedule, it would be inappropriate to reaffirm the 2007–2009 timeframe in the 1984 Decision.

2.B.2. In the Draft 1988 Mission Plan Amendment, DOE stated that " * * * the date indicate that the Yucca Mountain site has the potential capacity to accept at least 70,000 MTHM [metric tons heavy metal equivalent] of waste, but only after site characterization will

it be possible to determine the total quantity of waste that could be accommodated at the site."

a. Do the issues of limited spent fuel capacity at Yucca Mountain, indefinite suspension of the second repository program, and the likelihood that no more than one repository will be available by 2007–2009 undermine the NRC's 1984 assurance that "sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high level radioactive waste and spent fuel originating in such reactor and generated up to that time?"

b. Is there sufficient uncertainty in total spent fuel projections (e.g., from extension-of-life license amendments, renewal of operating licenses for an additional 20 to 30 years, or a new generation of reactor designs) that this Waste Confidence review should consider the institutional uncertainties arising from having to restart a second repository program?

2.B.2.a. Although it will not be possible to determine whether Yucca Mountain can accommodate 70,000 MTHM or more of spent fuel until after site characterization, the Commission does not believe that the question of repository capacity at the Yucca Mountain site should be a major factor in the analysis of Finding 2. This is because it cannot be assumed that Yucca Mountain will ultimately undergo development as a repository. The generic issue of repository capacity does add to the potential need for more than one repository, however.

As noted earlier, the NWPA established deadlines for major milestones in the development of the first and the second repository programs. The Act also required NRC to issue a final decision on the construction authorization application by January 1, 1989 for the first repository, and January 1, 1992 for the second (or within three years of the date of submission of the applications, whichever occurred later). The July 1984 Draft DOE Mission Plan set January 1998 and October 2004 as the dates for commencement of waste emplacement in the first and second repositories, assuming that Congressional authorization was obtained to construct the second repository.

Thus, at the time the 1984 Waste Confidence Decision was issued, DOE was authorized and directed to carry out two repository programs under a schedule to make both facilities operational by 2007–2009. DOE and NRC were also working under the constraint,

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still in force under the NWPA as amended, that no more than 70,000 MTHM may be emplaced in the first repository before the second is in operation. Because DOE estimated at the time that commercial U.S. nuclear power plants with operating licenses or construction permits would discharge a total 160,000 MTHM of spent fuel, it appeared that at least two repositories would be needed.

In the 1984 Waste Confidence Decision, reactors were assumed to have a 40-year operating lifetime, and because the earliest licenses were issued in 1959 and the early 1960's, the oldest plants' licenses were due to expire as early as 1999 and 2000, as discussed in more detail below. Although it was expected that at least one repository would be available by this time, there was also a limit as to how quickly spent fuel could be accepted by the repository. DOE had estimated that waste acceptance rates of 3400 MTHM per year could be achieved after the completion of Phase 2 of the first repository. This rate could essentially double if two repositories were in operation. At 6000 MTHM/year, it was estimated that all the anticipated spent fuel could be emplaced in the two repositories by about the year 2026. This was the basis for the Commission's position that sufficient repository capacity would be available within 30 years beyond expiration of any reactor OL to dispose of existing commercial high level waste and spent fuel originating in such reactor and generated up to that time.

In May 1986, however, DOE announced an indefinite postponement of the second repository program. The reasons for the postponement included decreasing forecasts of spent fuel discharges, as well as estimates that a second repository would not be needed as soon as originally supposed. With enactment of the NWPA in December 1987, DOE was required to terminate all site-specific activities with respect to a second repository unless such activities were specifically authorized and funded by Congress. The NWPA required DOE to report to Congress on the need for a second repository on or after January 1, 2007, but not later than January 1, 2010.

Current DOE spent fuel projections, based on the assumption of no new reactor orders, call for 87,000 MTHM to have been generated by the year 2036, including approximately 9000 MTHM of defense high-level waste. With the likelihood that there will be reactor lifetime extensions and renewals, however, the no-new-orders case

probably underestimates total spent fuel discharges. Also, the NWPA did not change the requirement that no more than 70,000 MTHM could be emplaced in the first repository before operation of the second. It therefore appears likely that two repositories will be needed to dispose of all the spent fuel and high-level waste from the current generation of reactors, unless Congress provides statutory relief from the 70,000 MTHM limit, and the first site has adequate capacity to hold all of the spent fuel and high-level waste generated. The Commission believes that if the need for an additional repository is established, Congress will provide the needed institutional support and funding, as it has for the first repository.

For all but a few licensed nuclear power reactors, OLs will not expire until some time in the first three decades of the twenty-first century. Several utilities are currently planning to have their OLs renewed for ten to 30 years beyond the original license expiration. At these reactors, currently available spent fuel storage alternatives effectively remove storage capacity as a potential restriction for safe operations. For these reasons, a repository is not needed by 2007–2009 to provide disposal capacity within 30 years beyond expiration of most OLs. If work is begun on the second repository program in 2010, the repository could be available by 2035, according to DOE's estimate of 25 years for the time it will take to carry out a program for the second repository. Two repositories available in approximately 2025 and 2035, each with acceptance rates of 3400 MTHM/year within several years after commencement of operations, would provide assurance that sufficient repository capacity will be available within 30 years of OL expiration for reactors to dispose of the spent fuel generated at their sites up to that time.

There are several reactors, however, whose OLs have already expired or are due to expire within the next few years, and which are now licensed or will be licensed only to possess their spent fuel. If a repository is not available until about 2025, these reactors may be exceptions to the second part of the Commission's 1984 Finding 2, which was that sufficient repository capacity will be available within 30 years beyond the expiration of any reactor OL to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

The basis for this second part of Finding 2 has two components: (1) A technical or hardware component; and (2) an institutional component. The

technical component relates to the reliability of storage hardware and engineered structures to provide for the safe storage of spent fuel. An example would be the ability of spent fuel assemblies to withstand corrosion within spent fuel storage pools, or the ability of concrete structures to maintain their integrity over long periods. In the 1984 Decision, the Commission found confidence that available technology could in effect provide for safe storage of spent fuel for at least 70 years.

The Commission's use of the expression "30 years beyond expiration of any reactor operating license" in the 1984 Finding was based on the understanding that the license expiration date referred to the scheduled expiration date at the time the license was issued. It was also based on the understanding that, in order to refuel the reactor, some spent fuel would be discharged from the reactor within twelve to eighteen months after the start of full power operation.

Thus, the Commission understood that, depending on the date of the first reactor outage for refueling, some spent fuel would be stored at the reactor site for most of the 40-year term of the typical OL. In finding that spent fuel could be safely stored at any site for at least 30 years after expiration of the OL for that reactor, the Commission indicated its expectation that the total duration of spent fuel storage at any reactor would be about 70 years.

Taking the earliest licensed power reactor, the Dresden 1 facility licensed in 1959, and adding the full 40-year operating license duration for a scheduled license expiration in the year 1999, the Commission's finding would therefore entail removal of all spent fuel from that reactor to a repository within the succeeding 30 years, or by 2029. Even if a repository were not available until the end of the first quarter of the twenty-first century, DOE would have at least four years to ship the reactor's 683 spent fuel assemblies, totalling 70 metric tons initial heavy metal (MTHM), from Dresden 1 without exceeding the Commission's 30-year estimate of the maximum time it would take to dispose of the spent fuel generated in that reactor up to the time its OL expired. (MTHM is a measure of the mass of the uranium in the fuel (or uranium and plutonium if it is a mixed oxide fuel) at the time the fuel is placed in the reactor for irradiation.)

Considering the experience from the 1984 and 1985 campaigns to return spent fuel from the defunct West Valley reprocessing facility to the reactors of

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origin, 70 metric tons of BWR spent fuel can easily be shipped within four years. The first campaign, involving truck shipments of 20 metric tons from West Valley, NY, to Dresden 1 in Morris, IL, took eleven months. The second, involving truck shipments of 43 tons from West Valley to the Oyster Creek reactor in Toms River, NJ, took six months. (See *Case Histories of West Valley Spent Fuel Shipments*, Final Report, NUREG/CR-4847 WPR-86(6811)-1, p. 2-2.) This estimate assumes, moreover, that no new transportation casks, designed to ship larger quantities of older, cooler spent fuel, for example, would be available by 2025.

The institutional part of the question concerning the availability of sufficient repository capacity required the Commission to make a finding as to whether spent fuel in at-reactor storage would be safely maintained after the expiration of the facility OL. This question related to the financial and managerial capability for continued safe storage and monitoring of spent fuel, rather than to the capability of the hardware involved. The Commission determined, in Finding 3 of its 1984 Decision, that spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure safe disposal, which was expected under Finding 2 to be about 30 years after the expiration of any reactor OL. (See discussion of Finding 3 below for additional discussion of the institutional aspects of spent fuel storage pending the availability of sufficient disposal capacity.)

The availability of a repository within the first quarter of the twenty-first century holds no significant adverse implications for the Commission's institutional concern that there be an organization with adequate will and wherewithal to provide continued long-term storage after reactor operation. This could be a concern if a significant number of reactors with significant quantities of spent fuel onsite were to discontinue operations indefinitely between now and 1995, and the utility-owners of these reactors did not appear to have the resources to manage them safely for up to 30 years pending the assumed availability of a repository in 2025.

No such development is likely. No licenses for currently operating commercial nuclear reactors are scheduled to expire until the year 2000, and most such licenses will expire during the first two decades after 2006. (See *Nuclear Regulatory Commission*

1989 Information Digest, NUREG-1350, Vol. 1, p. 33.) The availability of the first repository by 2025, and of a second repository within one or two decades thereafter, would provide adequate disposal capacity for timely removal of the spent fuel generated at these reactors.

There are several licensees, however, whose authority to operate their commercial reactors has already been terminated. These are Indian Point 1, Dresden 1, Humboldt Bay, and Lacrosse. They are also the only licensed power reactors that are retired with spent fuel being stored onsite. Assuming conservatively that a repository does not become operational until 2025, it appears likely that spent fuel will remain at these sites for more than 30 years beyond the time their reactors were indefinitely shut down, at which point their operating licenses could be considered to have effectively expired, although they will continue to hold a possession license for the storage of the spent fuel.

In considering the means and motivation of the owner of an indefinitely retired reactor to provide safe long-term storage, the Commission believes it is useful to distinguish between the owner with only one reactor, and the owner of a reactor at a multi-unit site or an owner with operating reactors at other sites.

In the case of a retired reactor at a multi-unit site, the owner would have a clear need to maintain the safety of storage at the retired reactor sufficiently to permit continued generation at the site. If the owner of the retired reactor also owned other reactors at other sites, the spent fuel at the retired reactor could be transferred, if necessary, to the storage facilities of other units still under active management. Of the four reactors just cited, Indian Point 1 and Dresden 1 fit this description, and the sibling reactors at their sites are operating under licenses that do not expire until well beyond the year 2000—that is, well within the post-OL period during which the Commission has found that spent fuel could be safely stored pending the availability of a repository.

For the Lacrosse and Humboldt Bay reactors, the Commission is confident that, even if a repository is not available within 30 years following their retirement, the overall safety and environmental acceptability of extended spent fuel storage will also be maintained for these exceptional cases. Because there will still be an NRC possession license for the spent fuel at these facilities, the Commission will retain ample regulatory authority to

require any measures, such as removal of the spent fuel remaining in storage pools to passive dry storage casks, that might become necessary until the time that DOE assumes title to the spent fuel under contracts pursuant to the NWPA. It should also be borne in mind that Humboldt Bay and Lacrosse are both small early reactors, and their combined spent fuel inventory totals 67 metric tons of initial heavy metal. (See *Spent Fuel Storage Requirements* (DOE/RL 88-34) October 1988, Table A.3b., pp. A.15-A.17.) If for any reason not now foreseen, this spent fuel can no longer be managed by the owners of these reactors, and DOE must assume responsibility for its management earlier than currently planned, this quantity of spent fuel is well within the capability of DOE to manage onsite or offsite with available technology financed by the utility either directly or through the Nuclear Waste Fund.

Nor does the Commission see a significant safety or environmental problem with premature retirements of additional reactors. In the Commission's original Waste Confidence Decision, it found reasonable assurance that spent fuel would have to spend no more than 30 years in post-operational storage pending the availability of a repository. For a repository conservatively assumed to be available in 2025, this expected 30-year maximum storage duration remains valid for most reactors, and would be true for all reactors that were prematurely retired after 1995. Based on the past history of premature shutdowns, the Commission has reason to believe that their likely incidence during the next six years will be small as a proportion of total reactor-years of operation.

Historically, 14 of the 125 power reactors that have operated in the U.S. over the past 30 years have been retired before the expiration of their operating licenses. These early retirements included many low-power developmental reactors, which may make the ratio of 14 to 125 disproportionately high as a basis for projecting future premature shutdowns.

The Commission is aware of currently operating reactors that may be retired before the expiration of their OLs, including: the recently-licensed Shoreham reactor, which has generated very little spent fuel; the Fort St. Vrain high-temperature gas-cooled reactor, which its owner plans to decommission; and the Rancho Seco reactor, which has operated for the past 12 years and may or may not be retired. Assuming that all these and perhaps a few more reactors do retire in the next several years, their

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total spent fuel storage requirements would not impose an unacceptable safety or environmental problem, even in the unlikely event that all these reactors' owners were rendered financially or otherwise unable to provide adequate care, and DOE were required to assume custody earlier than currently envisioned under the NWPA.

Licensed non-power research reactors provide an even more manageable case. DOE owns the fuel for almost all of these reactors, many of which have been designed with lifetime cores that do not require periodic refueling. For those reactors that do discharge spent fuel, DOE accepts it for storage or reprocessing, and not more than an estimated 50 kilograms of such spent fuel are generated annually.

Thus, given these worst-case projections, which are not expectations but bounding estimates, the Commission finds that a delay in repository availability to 2025 will not result in significant safety or environmental impacts due to extended post-operational spent fuel storage. To put it another way, the Commission is confident that, even if a repository were not available within 30 years after the effective expiration of the OLs for both currently retired reactors and potential future reactor retirements through 1995, the overall safety and environmental impacts of extended spent fuel storage would be insignificant.

2.B.2.b. Although it is clear that there is uncertainty in projections of total future spent fuel discharges, it is not clear that the institutional uncertainties arising from having to restart a second repository program should be considered in detail in the current Waste Confidence Decision review.

License renewals would have the effect of increasing requirements for spent fuel storage. The Commission understands that some utilities are currently planning to seek renewals for 30 years. Assuming for the sake of establishing a conservative upper bound that the Commission does grant 30-year license renewals, the total operating life of some reactors would be 70 years, so that the spent fuel initially generated in them would have to be stored for about 100 years if a repository were not available until 30 years after the expiration of their last OLs.

Even under the conservative bounding assumption of 30-year license renewals for all reactors, however, if a repository were available within the first quarter of the twenty-first century, the oldest spent fuel could be shipped off the sites of all currently operating reactors well before the spent fuel initially generated in them reached the age of 100 years. Thus, a

second repository, or additional capacity at the first, would be needed only to accommodate the additional quantity of spent fuel generated during the later years of these reactors' operating lives. The availability of a second repository would permit spent fuel to be shipped offsite well within 30 years after expiration of these reactors' OLs. The same would be true of the spent fuel discharged from any new generation of reactor designs.

In sum, although some uncertainty in total spent fuel projections does arise from such developments as utilities' planning renewal of OLs for an additional 20 to 30 years, the Commission believes that this Waste Confidence review need not at this time consider the institutional uncertainties arising from having to restart a second repository program. Even if work on the second repository program is not begun until 2010 as contemplated under current law, there is sufficient assurance that a second repository will be available in a timeframe that would not constrain the removal of spent fuel from any reactor within 30 years of its licensed life for operation.

2.B.3. Are early slippages in the DOE repository program milestones significant enough to affect the Commission's confidence that a repository will be available when needed for health and safety reasons?

The 2007–2009 timeframe imposed on the Commission by the May 23, 1979 remand by the Court of Appeals was based on the scheduled expiration of the OLs for the Vermont Yankee and Prairie Island nuclear reactors. The specific issues remanded to the Commission were: (1) Whether there is reasonable assurance that an offsite storage solution will be available by the years 2007–2009 (the expiration of the plants' operating licenses); and, if not, (2) whether there is reasonable assurance that the fuel can be stored safely at the sites beyond those dates.

There was no finding by the Court that public health and safety required offsite storage or disposal by 2007–2009. In directing the Commission to address the safety of at-reactor storage beyond 2007–2009, the Court recognized the possibility that an offsite storage or disposal facility might not be available by then. In any case, the years 2007–2009 no longer have the same meaning for this proceeding as they had in 1984; the OLs for Prairie Island and Vermont Yankee have been or will soon be extended to 2012–2014, on the basis of NRC's past willingness to approve a 40-year operating lifetime from the date of issuance of the OL.

The Commission has not identified a date by which a repository must be available for health and safety reasons. Taking into account institutional requirements for spent fuel storage, the Commission found, under Finding 3 in the 1984 Waste Confidence Decision, that spent fuel would be safely managed until sufficient repository capacity is available. The Commission also found, however, that in effect, under the second part of Finding 2, safe management would not need to continue for more than 30 years beyond expiration of any reactor's OL, because sufficient repository capacity was expected to become available within those 30 years. Considering that spent fuel would not have to be stored more than 30 years after any reactor's 40-year OL expiration, and taking into account the technical requirements for such storage, the Commission went on to determine under Finding 4 that, in effect, spent fuel could be safely stored for at least 70 years after discharge from a reactor. Thus, the Commission's 1984 Decision did not establish a time when sufficient repository capacity would be required; it established a minimum period during which storage would continue to be safe and environmentally acceptable pending the expected availability of sufficient repository capacity.

Bearing in mind that reactor facilities were originally designed and OLs issued for a licensed life for operation of 40 years, the Commission is proposing elsewhere in this **Federal Register** notice a clarifying revision of Finding 4 to say that spent fuel can be safely stored at a reactor for at least 30 years after the "licensed life for operation" of that reactor. Implicitly, the proposed use of the phrase "licensed life for operation" clarifies that the Commission found in 1984 that NRC licensing requirements for reactor facility design, construction, and operation provide reasonable assurance that spent fuel can be stored safely and without significant environmental impacts for at least the first 40 years of the reactor's life. The Commission's proposed finding also implies that, barring any significant and pertinent unexpected developments, neither technical nor institutional constraints would adversely affect this assurance for at least another 30 years after that first 40 years. Another implication of this revised finding is that, where a utility is able to meet NRC requirements to extend that reactor's operating lifetime by license renewal, spent fuel storage for at least 30 years beyond the end of the period of extended life will also be safe and

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without significant environmental impacts.

In assessing the effect of early slippages in DOE repository program milestones, therefore, the most important consideration is not the earliest date that an operating license actually expired, but the earliest date that an OL was issued. The earliest OL to be issued was for Dresden 1 in 1959, followed by a number of reactors licensed for operation in 1962. The OLs for all of the 111 power reactors now licensed to operate are currently scheduled to expire sometime within the first three decades of the twenty-first century, which is also the period in which their currently licensed life for operation would end. (See *Nuclear Regulatory Commission 1989 Information Digest*, NUREG-1350, Vol. 1, p. 33.) Thus, conservatively assuming here that there will be no license renewals, the earliest timeframe when a repository might be needed to dispose of spent fuel from the majority of reactors is 2029–2050.

As proposed in the first part of Finding 2, the Commission has reasonable assurance that a repository will be available within the first quarter of the twenty-first century. Even if a repository were not available until 2025, this would be several years before the beginning of the earliest timeframe within which, based on an assumed 30-year storage after an assumed 40-year licensed life of reactor operation, a repository might be needed for spent fuel disposal. Thus, early slippages in DOE's program milestones do not affect the Commission's confidence that a repository will be available within that timeframe.

2.B.4. NRC has stated that the 3- to 4-year license application review schedule is optimistic, and that for NRC to meet this schedule, DOE must submit a complete and high-quality license application. In the September 16, 1988 NRC comments to DOE on the Draft 1988 Mission Plan Amendment, the Commission requested that DOE acknowledge its commitment to develop this complete and high-quality application, "even if this would result in longer times to collect the necessary information and subsequent delays in submitting the license application."

Will NRC's emphasis on the completeness and quality of the license application have a significant effect on the timing of the submittal of the license application and subsequent licensing proceeding to grant construction authorization in time for repository availability by 2007–2009?

As the NRC indicated to DOE in NRC's October 25, 1985 comments on

the draft PDS, the three-year statutory schedule for the NRC licensing proceeding on the application for construction authorization is optimistic. The Commission has sought ways to improve the prospects for meeting this schedule, for example by developing the LSS for expedited document discovery during the licensing proceeding.

In the same correspondence on the PDS, NRC also stated that the adequacy of the three-year review period depends on DOE's submittal of a complete and high-quality application. A license application supported by inadequate data may lead to findings during the licensing proceeding that the results of certain tests cannot be admitted as part of the license application. If it is not possible to repeat the tests in question, NRC may have no alternative but to deny the application—with a consequent loss of program momentum and considerable financial cost.

NRC recognizes that emphasis on a complete and high-quality license application may cause some near-term delays that could make it difficult to achieve the current schedule calling for submittal of the construction authorization application in 1995. Notwithstanding any such delays, the Commission has reasonable assurance that if the Yucca Mountain site is not found unsuitable, a repository at that site could be available by the 2012–2014 timeframe, consistent with the rescheduled OL expiration dates for Prairie Island and Vermont Yankee. For reasons discussed previously, this timeframe now appears more relevant to the Waste Confidence proceeding than the 2007–2009 timeframe.

In any case, the Commission remains convinced that the benefits to the repository program of submitting a high-quality license application would outweigh the cost of delay in preparing the application. NRC has always placed great emphasis on early resolution of potential licensing issues in the interest of expeditious review of the license application and timely repository availability. It is in the same spirit of timely repository operation that the Commission is urging greater attention to quality than to meeting the schedule for submittal of the license application. NRC believes that a complete and high-quality license application offers the best available assurance that timely repository licensing and operation can be achieved.

In addition to expediting the review of the application, a high-quality license application and site characterization program should enhance overall confidence that any site granted a construction authorization will prove to

be reliable during the period of performance confirmation. It will also increase public confidence that the program is being carried out in a thorough and technically sound manner.

2.C. Conclusion on Finding 2

In reexamining the technical and institutional uncertainties surrounding the timely development of a geologic repository since the 1984 Waste Confidence Decision, the Commission has been led to question the conservatism of its expectation that a repository would be available to 2007–2009.

At the time of the 1984 Decision, the Commission said that timely attainment of a repository did not require DOE to adhere strictly to the milestones set out in the NWPA, and there would be delays in some milestones. It did not appear to the Commission at the time that delays of a year or so in meeting any of the milestones would delay the date of repository availability by more than a few years beyond the 1998 deadline specified in the act.

Since then, however, several developments have made it apparent that delays of more than a few years are to be the norm rather than the exception in the early years of this program. There has been a five-year slip in DOE's estimate of repository availability from 1998 to 2003, and DOE has been unable to meet such near-term repository program milestones as excavation of the exploratory shaft and the start of in-situ testing. There remains the possibility that potential repository availability at the Yucca Mountain site will be further delayed due to unforeseen problems during site characterization. These developments do not in themselves rule out the possibility that DOE will still be able to achieve repository operation by 2007–2009, but they do suggest that to expect repository operation by then may be optimistic.

In the Commission's view, 2012–2014 is now a more relevant timeframe than 2007–2009. When the Court issued its 1979 remand, 2007–2009 was when the OLs for Vermont Yankee and Prairie Island were scheduled to expire. The operating licenses for the two Prairie Island units have since been extended to 2013 and 2014, and the operating license for Vermont Yankee is eligible for extension to 2012. These extensions have been made available under the Commission's policy that the allowable operating life of a licensed reactor should not be foreshortened because of construction delays. It therefore seems reasonable for NRC to make its finding on the timing of repository availability

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by 2012–2014, rather than by 2007–2009. The Commission has a greater degree of assurance that if the Yucca Mountain site is suitable, a repository would be available there by 2012–2014.

For the sake of conservatism, however, the suitability of Yucca Mountain should not be assumed. Yucca Mountain is now the only candidate site available; the NWPA required that DOE terminate site characterization activities at all sites other than the Yucca Mountain site. In effect, the 2007–09 schedule for repository availability could be met only if Yucca Mountain survived the repository development process as a licensed site. If this site were found to be unlicenseable or otherwise unsuitable, characterization would have to begin at another site or suite of sites, with consequent further delay in repository availability. The final decision on the suitability of the site to proceed to licensing and repository development will rest with DOE, but the position of the NRC staff will figure in that decision. The staff will not be able to make a recommendation to a licensing board to authorize repository construction at Yucca Mountain until all site characterization activities have been completed. DOE might thus be able for several more years to determine whether there will in fact have to be a delay to find and characterize another site.

Another reason the Commission is unwilling to assume the suitability of Yucca Mountain is that NRC must be mindful of preserving all its regulatory options—including a recommendation of license application denial—to assure adequate protection of public health and safety from radiological risk. In our view, it is essential to dispel the notion that for scheduler reasons there is no alternative to the currently preferred site. This view is consistent with past Commission statements that the quality of DOE's preparations for a license application should take precedence over timeliness where the two conflict. It is also consistent with the view that because we are making predictions about completion dates for a unique and complex enterprise at least some 20 years hence, it is more reasonable to express the timescale for completion in decades rather than years.

In order to obtain a conservative upper bound for the timing of repository availability, the Commission has made the assumption that the Yucca Mountain site will be found to be unsuitable. If DOE were authorized to initiate site screening for a repository at a different site in the year 2000, the Commission believes it is reasonable to expect that a

repository would be available by the year 2025. This estimate is based on the DOE position that site screening for a second repository should begin 25 years before the start of waste acceptance. The consideration of technical and institutional issues presented here has found none that would preclude the availability of a repository within this timeframe.

For the second part of its 1984 finding on repository availability, the Commission found reasonable assurance that sufficient repository capacity will be available within 30 years beyond expiration of any reactor OL to dispose of existing commercial high level waste and spent fuel originating in that reactor and generated up to that time. The Commission believes that this finding should also be modified in light of developments since 1984.

When the Commission made this finding, it took into consideration both technical and institutional concerns. The technical concern centered on the ability of the spent fuel and the engineered at-reactor storage facilities to meet the requirements for extended post-operational storage before shipment for disposal. The institutional question concerned whether the utility currently responsible for post-operational at-reactor storage, or some substitute organization, would be able to assure the continued safety of this storage.

The principal new developments since 1984 that bear on these questions are: (1) That dry spent fuel storage technologies have become operational on a commercial scale; and (2) that several utilities are proceeding with plans to seek renewals of their OLs, with appropriate plant upgrading, for an additional period up to 30 years beyond the 40-year term of their current licenses. The accumulation of operating experience with dry-cask storage, a technology requiring little active long-term maintenance, provides additional assurance that both the technical and institutional requirements for extended post-operational spent fuel storage will be met. License renewals, however, would have the effect of increasing requirements for both the quantity and possibly the duration of storage. If the commission were to grant 30-year license renewals, the total operating life of some reactors could be 70 years, so that the spent fuel initially generated in such reactors would have to be stored for about 100 years, if a repository were not available until 30 years after the expiration of their last OLs. This raises the question as to whether that spent fuel, and the hardware and civil

engineering structures for storing it, can continue to meet NRC requirements for an additional 30 years beyond the period the Commission supported in 1984.

For all the reasons cited in the discussion of Finding 4, the Commission believes there is ample technical basis for confidence that spent fuel can be stored safely and without significant environmental impact at these reactors for at least 100 years. If a repository were available within the first quarter of the twenty-first century, the oldest spent fuel could be shipped off the sites of all currently operating reactors well before the spent fuel initially generated in them reached the age of 100 years.

The need to consider the institutional aspects of storage beyond 30 years after OL expiration was not in evidence in 1984 because the Commission was confident that at least one repository would be available by 2007–2009. On that schedule, waste acceptance of spent fuel from the first reactor whose operating license had expired (Indian Point 1, terminated in 1980) could have begun within 30 years of expiration of that license. If a repository does not prove to be available until 2025, however, it would not be available within 30 years of the time that OLs could be considered effectively to have expired for Indian Point 1 and the three other plants with spent fuel onsite that were retired before the end of their licensed life for reactor operation. The same would be true of any additional reactors prematurely retired between now and 1995, when the 30-year clock starts for the availability of a repository by 2025. Premature shutdowns notwithstanding, the Commission has reasons to be assured that the spent fuel at all of these reactors will be stored safely and without significant environmental impact until sufficient repository capacity becomes available.

Considering first the technical reasons for this assurance, it is important to recognize that each of these reactors and its spent fuel storage installation were originally licensed in part on the strength of the applicant's showing that the systems and components of concern were designed and built to assure safe operation for 40 years under expected normal and transient severe conditions. All of the currently retired reactors have a significant portion of that 40-year expected life remaining, and all have only small quantities of spent fuel onsite in storage installations that were licensed to withstand considerably larger thermal and radiation loadings from much greater quantities of spent fuel. Of the four reactors currently

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retired with spent fuel onsite, the two with far the longest terms of operation, Lacrosse and Dresden, were operated for 19 and 18 years, respectively.

For the continued safe management of the spent fuel and storage installations at any existing or potential prematurely retired plant, the Commission believes it can reasonably rely on the continued structural and functional integrity of the plant's engineered storage installations for at least the balance of its originally licensed life as if the OL were still in effect. This is to say that for the purposes of Finding 2, no foreseeable technical constraints have arisen to disturb the Commission's assurance that spent fuel storage at any reactor will remain safe and environmentally acceptable for at least 30 years after its licensed life for operation, regardless of whether its OL has been terminated at an earlier date.

The Commission also sees no insurmountable institutional obstacles to the continued safe management of spent fuel during the remainder of any shutdown reactor's initially licensed life for operation, or for at least 30 years thereafter. Because there will still be an NRC possession license for the spent fuel at any reactor that has indefinitely suspended operations, the Commission will retain ample regulatory authority to require any measures, such as removal of the spent fuel remaining in storage pools to passive dry storage casks, that might appear necessary after an OL expires. Even if a licensed utility were to become insolvent, and responsibility for spent fuel management were transferred to DOE earlier than is currently planned, the Commission has no reason to believe that DOE would have insufficient Nuclear Waste Fund resources or otherwise be unable to carry out any safety-related measures NRC considers necessary. Thus, in the case of a premature reactor retirement, the Commission has an adequate basis, on both technical and institutional grounds, for reasonable assurance that spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond not only the actual end of that reactor's OL, but the end of its originally licensed life for operation.

In sum, considering developments since 1984 in the repository development program, in the operating performance of U.S. power reactors, and in spent fuel storage technology, the Commission finds that: (1) The overall public health, safety, and environmental impacts of the possible unavailability of a repository by 2007–2009 would be insignificant; and (2) neither 30-year

renewals of reactor licenses nor a delay in repository availability to 2025 will result in significant safety or environmental impacts from extended post-operational spent fuel storage.

The Commission finds ample grounds for its proposed revised findings on the expected availability of a repository. The institutional support for the repository program is well-established. A mechanism for funding repository program activities is in place, and there is a provision in the NWPAA for adjusting, if necessary, the fee paid by utilities into this fund. Congress has continued to provide support for the repository program in setting milestones, delineating responsibilities, establishing advisory bodies, and providing a mechanism for dealing with the concerns of States and affected Indian tribes.

Technical support for extended spent fuel storage has improved since 1984. Considering the growing availability, reasonable cost, and accumulated operating experience with new dry cask spent fuel storage technology since then, the Commission now has even greater assurance that spent fuel can be stored safely and without significant environmental impact for at least 30 years after the expected expiration of any reactor's OL. Where a reactor's OL has been terminated before the expected expiration date, the Commission has an adequate basis to reaffirm what was implicit in its initial concept, namely: that regardless of the actual date when the reactor's operating authority effectively ended, spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond that reactor's licensed life for operation.

There is thus no foreseeable health and safety or environmental requirement that a repository be made available within the 2007–2009 timeframe at issue in the Commission's original proceeding. Nor does the Commission see a radiological safety or environmental requirement for repository availability at the end of the expected revised timeframe of 2012–2014 for the expiration of the Prairie Island and Vermont Yankee OLs.

Indeed, the Commission sees important NRC mission-related grounds for avoiding any statement that repository operation by 2007–2009 is required. Geologic disposal of high-level radioactive wastes is an unprecedented endeavor. It requires reliable projections of the waste isolation performance of natural and engineered barriers over millennia. After the repository is sealed, retrieval of the emplaced wastes will no

longer be practicable, and the commitment of wastes to that site will, by design, be irreversible. In DOE's testing, both in the laboratory and at the candidate repository site, in its development of facility and waste-package designs, and in all other work to demonstrate that NRC requirements will be met for a repository at Yucca Mountain, the Commission believes that the confidence of both NRC and the public depends less on meeting the schedule for repository operation than on meeting safety requirements and doing the job right the first time. Thus, given the Commission's assurance that spent fuel can safely be stored for at least 100 years if necessary, it appears prudent for all concerned to prepare for the better-understood and more manageable problems of storage for a few more years in order to provide additional time to assure the success of permanent geologic disposal.

This is not to say that the Commission is unsympathetic to the need for timely progress toward an operational repository. It is precisely because NRC is so confident of the national commitment to achieve early repository operation that the Commission believes it no longer need add its weight to the considerable pressures already bearing on the DOE program. There is ample institutional impetus on the part of others, including Congress, the nuclear power industry, State utility rate regulatory bodies, and consumers of nuclear-generated power, toward DOE achievement of scheduled program milestones. With continuing confidence in the technical feasibility of geologic disposal, the Commission has no reason to doubt the institutional commitment to achieve it in a timeframe well before it might become necessary for safety or environmental reasons. Indeed, the Commission believes it advisable not to attempt in this review a more precise NRC estimate of the point at which a repository will be needed for radiological safety or environmental reasons, lest this estimate itself undermine the commitment to earlier achievement of repository operations. The Commission continues to hope that a repository will in fact be available by 2007–2009, and has found nothing to date that would conclusively prevent this achievement.

To find reasonable assurance that a repository will be available by 2007–2009, however, is a different and more consequential proposition in the context of this review. In light of the delays the program has encountered since its inception, and the regulatory need to avoid a premature commitment to the

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Yucca Mountain site, the Commission cannot prudently describe a basis for assurance that the current DOE schedule for repository operation in 2003 will not slip another four to six years under any reasonably foreseeable circumstances. The Commission could more easily substantiate a finding that a repository will be available within the revised 2012–2014 timeframe that would be created by extending the OLs of the reactors in question when the Waste Confidence proceeding began. Even this revised estimate, however, could too easily be misinterpreted as an NRC estimate of the time at which continued spent fuel storage at these sites would be unsafe or environmentally significant. The Commission's enhanced confidence in the safety of extended spent fuel storage provides adequate grounds for the view that NRC need not at this time define more precisely the period when, for reasons related to NRC's mission, a permanent alternative to post-operational spent fuel storages will be needed. The Commission therefore proposes the following revision of its original Finding on when sufficient repository capacity will be available.

The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

Original Finding 3

The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed, in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel.

Proposed Finding 3

Same as above.

3.A. Issues Considered in Commission's 1984 Decision on Finding 3

In the Commission's discussion of Finding 3 in its Waste Confidence Decision (49 FR 34658, August 31, 1984), in section 2.3 "Third Commission Finding," the Commission stated.

Nuclear power plants whose operating licenses expire after the years 2007–09 will be subject to NRC regulation during the entire period between their initial operation and the availability of a waste repository. The Commission has reasonable assurance that the spent fuel generated by these licensed plants will be managed by the licensees in a safe manner. Compliance with the NRC

regulations and any specific license conditions that may be imposed on the licensees will assure adequate protection of the public health and safety. Regulations primarily addressing spent fuel storage include 10 CFR part 50 for storage at the reactor facility and 10 CFR part 72 for storage in independent spent fuel storage installations (ISFSIs). Safety and environmental issues involving such storage are addressed in licensing reviews under both parts 50 and 72, and continued storage operations are audited and inspected by NRC. NRC's experience in more than 80 individual evaluations of the safety of spent fuel storage shows that significant releases of radioactivity from spent fuel under licensed storage conditions are extremely remote.

Some nuclear power plant operating licenses expire before the years 2007–09. For technical, economic or other reasons, other plants may choose, or be forced to terminate operation prior to 2007–09 even though their operating licenses have not expired. For example, the existence of a safety problem for a particular plant could prevent further operation of the plant or could require plant modifications that make continued plant operation uneconomic. The licensee, upon expiration or termination of its license, may be granted (under 10 CFR part 50 or part 72) a license to retain custody of the spent fuel for a specified term (until repository capacity is available and the spent fuel can be transferred to DOE under sec. 123 of the Nuclear Waste Policy Act of 1982) subject to NRC regulations and license conditions needed to assure adequate protection of the public. Alternatively, the owner of the spent fuel, as a last resort, may apply for an interim storage contract with DOE, under sec. 135(b) of the Act, until not later than 3 years after a repository or monitored retrievable storage facility is available for spent fuel. For the reasons discussed above, the Commission is confident that in every case the spent fuel generated by those plants will be managed safely during the period between license expiration or termination and the availability of a mined waste repository for disposal.

Even if a repository does not become available until 2025, nothing has occurred during the five years since its original Decision to diminish the Commission's confidence that high-level waste and spent fuel will be managed in a safe manner until a repository is available. The same logic just stated continues to apply through the first quarter of the twenty-first century. NRC regulations remain adequate to assure safe storage of spent fuel and radioactive high-level waste at reactors, at independent spent fuel storage installations (ISFSIs), and in an MRS until sufficient repository capacity is available.

10 CFR 72.42(a) provides for renewal of licensed storage at ISFSIs for additional 20-year periods for interim storage, or for additional 40-year periods for monitored retrievable storage of spent fuel and solidified radioactive

high-level waste if an MRS facility is constructed, licensed, and operated. This would ensure that spent fuel and solidified high-level waste, if any were to be delivered to an MRS facility, would remain in safe storage under NRC regulation throughout its storage. The Commission has also published for public comment a proposed amendment to part 72, to issue a general license to reactor operating licensees to use approved spent fuel storage casks at reactor sites. If this proposed amendment is promulgated, no specific part 72 license would be required. Operating license holders would register with NRC to use approved casks on their sites.

Spent fuel may continue to be stored in the reactor spent fuel pool under a part 50 "possession only" license after the reactor has ceased operating. In addition, DOE's policy of disposing of the oldest fuel first, as set forth in its Annual Capacity Report, makes it unlikely that any significant fraction of total spent fuel generated will be stored for longer than the 30 years beyond the expiration of any operating reactor license. This expectation, established in the Commission's original proceeding, continues to be reasonable, even in the event that a repository is not available until some time during the first quarter of the twenty-first century. Even in the case of premature shutdowns, where spent fuel is most likely to remain at a site for 30 years or longer beyond OL expiration (see Finding 2, previously discussed), the Commission has confidence that spent fuel will be safely managed until safe disposal is available.

Until the reactor site has been fully decommissioned, and spent fuel has been transferred from the utility to DOE as required by NRC regulations, the licensee remains responsible to NRC. Furthermore, under 10 CFR 50.54bb, originally issued in final form by the Commission with its 1984 Waste Confidence Decision, a reactor licensee must provide to NRC, five years before expiration of an OL, notice of plans for spent fuel disposition. Accordingly, the Commission concludes that nothing has changed since the enactment of the Nuclear Waste Policy Act of 1982 and the Waste Confidence Decision in August 1984 to diminish the Commission's " * * * reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available * * * ."

Pursuant to the NWPAA, the Commission issued in final form 10 CFR part 53, "Criteria and Procedures for Determining Adequacy of Available

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Spent Nuclear Fuel Storage Capacity," addressing the determination of need, if any, for DOE interim storage. No applications were received by the June 30, 1989 NWPA deadline incorporated into the Commission's rule, and it seems unlikely that any applications will be made to NRC for interim storage by DOE. Even if NRC were to make an exception for a late application, a determination must be made before January 1, 1990 to comply with the NWPA.

3.B Relevant Issues That Have Arisen Since the Commission's Original Decision on Finding 3

Although a DOE facility will not be available to enable the Department to begin accepting spent fuel in 1998, as provided in the contracts under the NWPA, the Commission's confidence in safe storage is unaffected by any potential contractual dispute between DOE and spent fuel generators and owners as to responsibility for spent fuel storage. In the event that DOE does not take title to spent fuel by this date, a licensee under either 10 CFR part 50 or part 72 cannot abandon spent fuel in its possession. Further, the Commission notes that only two reactors are currently scheduled for shutdown before 2003, DOE's anticipated repository startup date. (See *Nuclear Regulatory Commission 1989 Information Digest*, NUREG-1350, Vol. 1, p.33). To resolve any continuing uncertainties, however, it would be helpful if DOE and utilities and other spent fuel generators and owners could reach an early and amicable resolution to the question of how and when DOE will accept responsibility for spent fuel. This would facilitate cooperative action to provide for a smoothly operating system for the ultimate disposition of spent fuel.

The Commission recognizes that the NWPA limitation of 70,000 NTHM for the first repository will not provide adequate capacity for the total amount of spent fuel projected to be generated by all currently operating licensed reactors. The NWPA effectively places a moratorium on a second repository program until 2007-2010. Either the first repository must be authorized and able to provide expanded capacity sufficient to accommodate the spent fuel generated, or there must be more than one repository. Since Congress specifically provided in the NWPA for a first repository, and required DOE to return for legislative authorization for a second repository, the Commission believes that Congress will continue to provide institutional support for adequate repository capacity.

The Commission's confidence about the availability of repository capacity is not affected by the possibility that some existing reactor licenses might be renewed to permit continued generation of spent fuel at these sites. Because only two reactor licenses are scheduled to expire before 2003, the impact of license renewals (a matter not considered in the Commission's 1984 Decision) will have no significant effect within the first quarter of the twenty-first century on scheduling requirements for a second repository. Renewals may slightly alleviate the need for a second repository in the short term, because spent fuel storage capacity will be expanded for extended storage at these reactor sites. Over the longer term, renewals might increase spent fuel generation well into the latter half of the twenty-first century. Nonetheless, nothing in this situation diminishes the Commission's assurance that safe storage will be made available as needed.

In summary, the Commission finds no basis for changing the Third Finding in its Waste Confidence Decision. The Commission continues to find " * * * reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel."

Original Finding 4

The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of that reactor's operating license at that reactor's spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

Proposed Finding 4

The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

4.A. Issues Considered in Commission's 1984 Decision on Finding 4

In the Commission's discussion of Finding 4 in its Waste Confidence Decision (49 FR 34658, August 31, 1984) section 2.4 "Fourth Commission Finding," the Commission said that:

Although the Commission has reasonable assurance that at least one mined geologic repository will be available by the years 2007-09, the Commission also realizes that for various reasons, including insufficient capacity to immediately dispose of all existing spent fuel, spent fuel may be stored in existing or new storage facilities for some periods beyond 2007-09. The Commission believes that this extended storage will not be necessary for any period longer than 30 years beyond the term of an operating license. For this reason, the Commission has addressed on a generic basis in this decision the safety and environmental impacts of extended spent fuel storage at reactor spent fuel basins or at either onsite or offsite spent fuel storage installations. The Commission finds that spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of reactor operating licenses. To ensure that spent fuel which remains in storage will be managed properly until transferred to DOE for disposal, the Commission is proposing an amendment to its regulations (10 CFR part 50). The amendment will require the licensee to notify the Commission, five years prior to expiration of its reactor operating license, how the spent fuel will be managed until disposal.

The Commission's finding is based on the record of this proceeding which indicates that significant releases of radioactivity from spent fuel under licensed storage conditions are highly unlikely. It is also supported by the Commission's experience in conducting more than 80 individual safety evaluations of storage facilities.

The safety of prolonged spent fuel storage can be considered in terms of four major issues: (a) The long-term integrity of spent fuel under water pool storage conditions, (b) structure and component safety for extended facility operation, (c) the safety of dry storage, and (d) potential risks of accidents and acts of sabotage at spent fuel storage facilities.

For reasons discussed above, the Commission arrived at a provisional figure of 10 years or more for storage (i.e., a 40-year reactor OL span, plus 30 years or more).

The 70-year-plus estimate is supported by oral testimony from the nuclear industry to the Commission in the Waste Confidence Proceeding. (See Transcript of Commission Meeting, "In the Matter of: Meeting on Waste Confidence Proceeding," January 11, 1982, Washington, DC, pp. 148-160). This testimony specifically addressed safety issues related to water pool storage of spent fuel and supported the position that spent fuel could be stored for an indefinite period, citing the industry's written submittal to the Commission in the proceeding. [See "The Capability for the Safe Interim Storage of Spent Fuel" (Document 4 of 4), Utility Nuclear Waste Management Group and Edison Electric Institute, July 1980]. Some of this

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material alluded to in the oral testimony was subsequently referenced by the Commission in its discussion of water pool storage issues and its Fourth Finding of reasonable assurance that spent fuel and high level waste " * * * will be managed in a safe manner." (See 49 FR 346758 at pp. 34681-2, August 31, 1984).

If a reactor with a 40-year initial license were to have that license renewed for another 30 years, the Commission believes that the spent fuel generated at that reactor can be safely stored for at least several decades past the end of the 70-year operating period. Adding to these 70 years the expected 30-year post-OL period during which the Commission believes, under Finding 2, that sufficient repository capacity will be made available for any reactor's spent fuel, the total storage time would be about 100 years.

In making the original Fourth Finding, the Commission did not determine that for technical or regulatory reasons, storage would have to be limited to 70 years. This is apparent from the Commission's use of the words " * * * for at least 30 years beyond the expiration of that reactor's operating license * * * [emphasis added]." Similarly, in using the words "at least" in its proposed revised Finding Four, the Commission is not suggesting 30 years beyond the licensed life for operation (which may include the term of a revised license) represents any technical limitation for safe and environmentally benign storage. Degradation rates of spent fuel in storage, for example, are slow enough that it is hard to distinguish by degradation alone between spent fuel in storage for less than a decade and spent fuel stored for several decades.

The Commission's proposed revised Finding here is meant to apply both to wet storage in reactor pools and dry storage in engineered facilities outside the reactor containment building. Both dry and wet storage will be discussed in detail next.

Since the original Waste Confidence Decision, which found that material degradation processes in dry storage were well-understood, and that dry-storage systems were simple, passive, and easily maintained, NRC and ISFSI operators have gained experience with dry storage which confirms the Commission's 1984 conclusions. NRC staff safety reviews of topical reports on storage-system designs, the licensing and inspection of storage at two reactor sites, and NRC promulgation of the part 72 amendment for MRS, have significantly increased the agency's understanding of the confidence in dry storage.

Under NWPA section 218(a), DOE has carried out spent fuel storage research and development as well as demonstration of dry cask storage at its Idaho National Engineering Laboratory. Demonstration has been carried out for metal casks under review or previously reviewed by NRC staff. DOE has also provided support to utilities in dry storage licensing actions (see Godlewski, N.Z., "Spent Fuel Storage—An Update," *Nuclear News*, Vol. 30, No. 3, March 1987, pp. 47-52).

Dry storage of spent fuel has become an available option for utilities, with at-reactor dry storage licensed and underway at two sites: The H.B. Robinson Steam Electric Plant, Unit 2, in South Carolina, and the Surry Nuclear Station in Virginia. NRC has received an application for dry storage at Duke Power Company's Oconee Power Station site as well. This application is still under review, but the environmental review is completed and an environmental assessment and finding of no significant impact have been issued (see 53 FR 44133, November 1, 1988). Based on utility statements of intent, and projections of need for additional storage capacity at reactor sites, the NRC staff expects numerous applications from utilities over the next decade (see "Final Version Dry Cask Storage Study," DOE/RW-0220, February 1989).

Since the original Waste Confidence finding, the Commission has reexamined long-term spent fuel storage in issuing an amendment to 10 CFR part 72 to address the storage of spent fuel and high-level radioactive waste in an MRS, as envisioned by Congress in section 141 of the NWPA. Under the rule, storage in an MRS is to be licensed for a period of 40 years, with the possibility for renewal. The Commission determined not to prepare an environmental impact statement for the proposed amendments to 10 CFR part 72, however. (See 53 FR 31651, p. 31657, August 19, 1988.) An environmental assessment and finding of no significant impact were issued because the Commission found that the consequences of long-term storage are not significant. The environmental assessment for 10 CFR part 72, "Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste," NUREG-1092, assessed dry storage of spent fuel for a period of 70 years after receipt of spent fuel from a reactor:

The basis chosen for evaluating license requirements for the long-term storage of spent nuclear fuel and high-level radioactive waste in an MRS is an installation having a 70-year design lifetime and a 70,000 MTU storage capability. This assessment focuses

on the potential environmental consequences for a long-term storage period, a period for which the Commission needs to assure itself of the continued safe storage of spent fuel and high-level radioactive waste and the performance of materials of construction. This means the reliability of systems important to safety needs to be established to ensure that long-term storage of spent fuel and HLW does not adversely impact the environment.

For example, the staff needs to establish that systems, such as concrete shielding, have been evaluated to determine how their physical properties withstand the consequences of irradiation and heat flux for about a 70-year period. The Commission addressed structure and component safety for extended operation for storage of spent fuel in reactor water pools in the matter of waste confidence rulemaking proceeding. The Commission's preliminary conclusion is that experience with spent fuel storage provides an adequate basis for confidence in the continued safe storage of spent fuel for at least 30 years after expiration of a plant's license. The Commission is therefore confident of the safe storage of spent fuel for at least 70 years in water pools at facilities designed for a 40-year lifetime. The Commission also stated that its authority to require continued safe management of spent fuel generated by licensed plants protects the public and assures them the risks remain acceptable. In consideration of the safety of dry storage of spent fuel, the Commission's preliminary conclusions were that [its] confidence in the extended dry storage of spent fuel is based on a reasonable understanding of the material degradation processes, together with the recognition that dry storage systems are simpler and more readily maintained. In response to Nuclear Waste Policy Act of 1982 authorizations, the Commission noted: " * * * the Commission believes the information above [on dry spent fuel storage research and demonstration] is sufficient to reach a conclusion on the safety and environmental effects of extended dry storage. All areas of safety and environmental concern (e.g., maintenance of systems and components, prevention of material degradation, protection against accidents and sabotage) have been addressed and shown to present no more potential for adverse impact on the environmental and the public health and safety than storage of spent fuel in water pools." At this time, the Commission is confident it can evaluate the long-term integrity of material for constructing an installation and provide the needed assurance for safe storage of spent fuel and HLW to establish the licensability of an MRS over extended periods of time. The MRS fuel storage concepts discussed here for revision of 10 CFR part 72 covers only dry storage concepts. [References omitted]

The Commission believe that its 1984 Fourth Finding should be changed to reflect the environmental assessment in the 10 CFR part 72 MRS rulemaking and other evidence that spent fuel can be stored, safely and without significant

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environmental impact, for extended periods. Although the Commission does not believe storage in excess of a century to be likely, with or without an MRS, there is the potential for storage of spent fuel for times longer than 30 years beyond the expiration of an initial, extended, or renewed reactor OL, if a reactor operating under such a license were prematurely shut down. The Commission does not, however, see any significant safety or environmental problems associated with storage for at least 30 years after the licensed life for operation of any reactor, even if this effectively means storage for at least 100 years, in the case of a reactor with a 70-year licensed life for operation.

Under the environmental assessment for the MRS rule, the Commission has found confidence in the safety and environmental insignificance of dry storage of spent fuel for 70 years following a period of 70 years of storage in spent fuel storage pools. Thus, this environmental assessment supports the proposition that spent fuel may be stored safely and without significant environmental impact for a period of up to 140 years if storage in spent fuel pools occurs first and the period of dry storage does not exceed 70 years.

The Commission has also found that experience with water-pool storage of spent fuel continues to confirm that pool storage is a benign environment for spent fuel that does not lead to significant degradation of spent fuel integrity. Since 1984, utilities have continued to provide safe additional reactor pool storage capacity through reracking, with over 110 such actions now completed. The safety of storage in pools is widely recognized among cognizant professionals. Specifically, the Commission notes one expert's view that:

During the last 40 years there has been very positive experience with the handling and storing of irradiated fuel in water; thus wet storage is now considered a proved technology. There is a substantial technical basis for allowing spent fuel to remain in wet storage for several decades. For the past two decades, irradiated Zircaloy-clad fuel has been handled and stored in water. There continues to be no evidence that Zircaloy-clad fuel degrades significantly during wet storage—this includes: fuel with burnups as high as 41,000 MWd/MTU; continuous storage of low-burnup fuel for as long as 25 years; and irradiation of fuel in reactors for periods up to 22 years. Cladding defects have had little impact during wet storage, even if the fuel is uncanned. [References omitted.] [See Bailey, W.J. and Johnston, Jr. A.B., *et al.*, "Surveillance of LWR Spent Fuel in Wet Storage," NP-3765, Electric Power Research Institute (EPRI), October 1984, pp. 2-10.]

This last conclusion has been reaffirmed by the same authors, who recently wrote: "There continues to be no evidence that LWR spent fuel with Zircaloy or stainless steel cladding degrades significantly during wet storage [EPRI 1986; International Atomic Energy Agency (IAEA) 1982]." (See "Results of Studies on the Behavior of Spent Fuel in Storage," Journal of the Institute of Nuclear Materials Management, Vol. XVI, No. 3, April 1988, p. 27.IV A.)

In addition to the confidence that the spent fuel assemblies themselves will not degrade significantly in wet storage, there is confidence that the water pools in which the assemblies are stored will remain safe for extended periods:

As noted in the recent IAEA world survey, the 40 years of positive experience with wet storage illustrates that it is a fully-developed technology with no associated major technological problems. Spent fuel storage pools are operated without substantial risk to the public or the plant personnel. There is substantial technical basis for allowing spent fuel to remain in wet storage for several decades. Minor, but repairable, problems have occurred with spent fuel storage pool components such as liners, racks, and piping. [See Bailey, W.J. and Johnston, Jr. A.B., *et al.*, "Surveillance of LWR Spent Fuel in Wet Storage," EPRI NP-3765, prepared by Battelle Pacific Northwest Laboratories, Final Report, October 1984, p. 6-1.]

The studies just cited support the view that rates of uniform corrosion of spent fuel cladding in storage pools are low over time. Localized corrosion on cladding surfaces has also been gradual and can be expected to remain so. Cladding that has undergone damage while in the reactor core has not resulted in significant releases of radioactivity when stored in pools. Furthermore, the operational experience accumulated since the 1984 Waste Confidence Decision and NRC experience in licensing and inspection reinforce the conclusions in that Decision that wet storage involves a relatively benign environment. There are no driving mechanisms, such as temperature and pressure, to degrade storage structures or components or the fuel itself, or to spread contamination. Degradation mechanisms are gradual and well understood; they allow ample time for remedial action, including repair or replacement of any failing systems. This extensive experience adequately supports predictions of long-term integrity of storage basins.

The Commission also notes the endorsement of this basic confidence by cognizant professional organizations:

The American Nuclear Society issued a policy statement [ANS 1986] in 1986

regarding storage of spent nuclear fuel. The statement indicates that continued wet storage of spent fuel at nuclear power plant sites until the federal government accepts it under existing contracts with the utilities is safe, economical and environmentally acceptable. [See Gilbert, E.R., Bailey, W.J., and Johnston, A.B., "Results of Studies on the Behavior of Spent Fuel in Storage," Journal of the Institute of Nuclear Materials Management, Vol. XVI, No. 3, April 1988, p. 27.IV A.)]

Thus, supported by the consistency of NRC experience with that of others, the Commission has concluded that spent fuel can be stored safely and without significant environmental impact, in either wet storage or in wet storage followed by dry storage, for at least 100 years. The Commission considers it unlikely, however, that any fuel will actually remain in wet storage for 100 years or even for 70 years. We anticipate that, consistent with the currently developing trend, utilities will move fuel rods out of spent fuel pools and into dry storage to make room in pools for freshly-discharged spent fuel.

Although the Commission has concluded that reactor spent fuel pools can safely be used to store spent fuel for 100 years, there is no technically compelling reason to use them that long. If reactor licenses are renewed for as long as 30 years, making a total of 70 years of operation, it will be necessary to store the spent fuel discharged at the end of the reactor's operation in a spent fuel pool for several years to allow for radioactive decay and thermal cooling. After this period, the fuel could be placed in dry storage and the spent fuel pool decommissioned. Thus, for most reactors, the most likely maximum period of storage will be well within the extended 30-year post-operational period under the Commission's proposed revision to Finding 4. Moreover, considering that under certain conditions spent fuel can be stored safely and without significant environmental impacts for up to 140 years, the Commission believes there is ample basis for confidence in storage for at least 100 years.

In its 1984 Waste Confidence Decision, the Commission also concluded that "there are no significant additional non-radiological impacts which could adversely affect the environment if spent fuel is stored beyond the expiration of operating licenses for reactors" (see 49 FR 34658 at p. 34686, August 31, 1984). The Commission did not find anything to contradict this conclusion in its 1988 rulemaking amending 10 CFR part 72 for long-term spent fuel and high-level waste storage at an MRS:

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In August 1984, the NRC published an environmental assessment for this proposed revision of part 72 NUREG-1092, 'Environmental Assessment for 10 CFR part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste.' NUREG-1092 discusses the major issues of the rule and the potential impact on the environment. The findings of the environmental assessment are '(1) past experience with water pool storage of spent fuel establishes the technology for long-term storage of spent fuel without affecting the health and safety of the public, (2) the proposed rulemaking to include the criteria of 10 CFR part 72 for storing spent nuclear fuel and high-level radioactive waste does not significantly affect the environment, (3) solid high-level waste is comparable to spent fuel in its heat generation and in its radioactive material content on a per metric ton basis, and (4) knowledge of material degradation mechanisms under dry storage conditions and the ability to institute repairs in a reasonable manner without endangering the health [and safety] of the public shows dry storage technology options do not significantly impact the environment.' The assessment concludes that, among other things, there are no significant environmental impacts as a result of promulgation of these revisions of 10 CFR part 72.

Based on the above assessment, the Commission concludes that the rulemaking action will not have a significant incremental environmental impact on the quality of the human environment. [53 FR 31651 at pp. 31657-31658, August 19, 1988.]

Thus, the 1988 amendments to 10 CFR part 72 provide the basis for the Commission to conclude that the environmental consequences of long-term spent fuel storage, including non-radiological impacts, are not significant.

Finally, no considerations have arisen to affect the Commission's confidence since 1984 that the possibility of a major accident or sabotage with offsite radiological impacts at a spent-fuel storage facility is extremely remote. NRC has recently reexamined reactor pool storage safety in two studies, "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants" (NUREG/CR-5176) and "Beyond Design Basis Accidents in Spent Fuel Pools" (NUREG-1353). These studies reaffirmed that there are no safety considerations that justify changes in regulatory requirements for pool storage. Both wet- and dry-storage activities have continued to be licensed by the Commission. In its recent rulemaking amending 10 CFR part 72 to establish licensing requirements for an MRS, the Commission did choose to eliminate an exemption regarding tornado missile impact " * * * to assure designs continue to address maintaining confinement of particulate material." (53 FR 31651, p. 31655, August 19, 1988).

However, NRC staff had previously considered tornado missile impacts in safety reviews of design topical reports and in licensing reviews under 10 CFR part 72.

4.B. Relevant Issues That Have Arisen Since the Commission's Original Decision on Finding 4

In its original Finding 4, the Commission found reasonable assurance of safe storage without significant environmental impacts for at least 30 years beyond reactor OL expiration. Delays and uncertainties in the schedule for repository availability since the 1984 Decision have convinced the Commission to allow some margin beyond the scheduled date for repository opening currently cited by DOE. As noted in Finding 2, the Commission has reasonable assurance that at least one repository will be available within the first quarter of the twenty-first century. For all currently operating reactors, this would still be within the period of 30 years from expiration of their OLs, which the Commission previously found to be the minimum period for which spent fuel storage could be considered safe and without significant environmental impact.

Under the NWPA as amended, DOE is authorized to dispose of up to 70,000 MTHM in the first repository before granting a construction authorization for a second. Under existing licenses, projected spent fuel generation could exceed 70,000 MTHM as early as the year 2010. Possible extensions or renewals of OLs also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository—and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses—it will be necessary to have at least one additional repository. Assuming here that the first repository is available by 2025 and has a capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor OLs.

Although action on a second repository before the year 2007 would require Congressional approval, the Commission believes that Congress will take the necessary action if it becomes clear that the first repository site will not have the capacity likely to be needed. If DOE were able to address the need for a second repository earlier, for

example by initiating a survey for a second repository site by the year 2000, DOE might be able to reduce the potential requirement for extended spent fuel storage in the twenty-first century. The Commission does not, however, find such action necessary to conclude that spent fuel can be stored safely and without significant environmental impact for extended periods.

The potential for generation and onsite storage of a greater amount of spent fuel as a result of the renewal of existing OLs does not affect the Commission's findings on environmental impacts. In Finding 4, the Commission did not base its determination on a specific number of reactors and amount of spent fuel generated. Rather, the Commission took note of the safety of spent fuel storage and lack of environmental impacts overall, noting that individual actions involving such storage would be reviewed. In the event there were applications for renewal of existing reactor OLs, each of these actions would be subject to safety and environmental reviews, with subsequent issuance of an environmental assessment or environmental impact statement, which would cover storage of spent fuel at each reactor site during the period of the renewed license.

The Commission also notes that the amount of spent fuel expected to be discharged by reactors has continued to decline significantly, a trend already noted in the Commission's discussion of its Finding 5 (49 FR 34658 at p. 34687, August 31, 1984). At the time of the Commission's decision, " * * * the cumulative amount of spent fuel to be disposed of in the year 2000 [was] expected to be 58,000 metric tons of uranium" (see "Spent Fuel Storage Requirements" (Update of DOE/RL-82-17) DOE/RL-83-1, January, 1983). Today, that figure has declined to 40,384 metric tons (see "Spent Fuel Storage Requirements" (DOE/RL-88-34), October 1988, p. A. 17). Thus, the amount of spent fuel considered likely to be discharged by the year 2000 in the Commission's 1984 decision will not be attained until well into the second decade of the twenty-first century, if then.

The Commission believes that its 1984 Finding 4 should be revised to acknowledge the possibility and assess the safety and environmental impacts of extended storage for periods longer than 70 years. The principal reasons for this proposed revision are that: (1) The long-term material and system degradation effects are well understood and known to be minor; (2) the ability to maintain

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the system is assured; and (3) the Commission maintains regulatory authority over any spent fuel storage installation.

On the basis of experience with wet and dry spent fuel storage and related rulemaking and licensing actions, the Commission concludes that spent fuel can be safely stored without significant environmental impact for at least 100 years, if necessary. Therefore, the Commission proposes to revise its original Fourth Finding thus: "The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations."

Original Finding 5

The Commission finds reasonable assurance that safe independent onsite spent fuel storage or offsite spent fuel storage will be made available if such storage capacity is needed.

Proposed Finding 5

Same as above.

5.A. Issues Considered in Commission's 1984 Decision on Finding 5

In its discussion of Finding 5 of its Waste Confidence Decision (49 FRN 34658, August 31, 1984), the Commission said that:

The technology for independent spent fuel storage installations, as discussed under the fourth Commission Finding, is available and demonstrated. The regulations and licensing procedures are in place. Such installations can be constructed and licensed within a five-year time interval. Before passage of the Nuclear Waste Policy Act of 1982 the Commission was concerned about who, if anyone, would take responsibility for providing such installations on a timely basis. While the industry was hoping for a government commitment, the Administration had discontinued efforts to provide those storage facilities. * * * The Nuclear Waste Policy Act of 1982 establishes a national policy for providing storage facilities and thus helps to resolve this issue and assure that storage capacity will be available.

Prior to March 1981, the DOE was pursuing a program to provide temporary storage in off-site, or away-from-reactor (AFR), storage installations. The intent of the program was to provide flexibility in the national waste disposal program and an alternative for those utilities unable to expand their own storage capacities.

Consequently, the participants in this proceeding assumed that, prior to the availability of a repository, the Federal government would provide for storage of

spent fuel in excess of that which could be stored at reactor sites. Thus, it is not surprising that the record of this proceeding prior to the DOE policy change did not indicate any direct commitment by the utilities to provide AFR storage. On March 27, 1981, DOE placed in the record a letter to the Commission stating its decision 'to discontinue its efforts to provide Federal government-owned or controlled away-from-reactor storage facilities.' The primary reasons for the change in policy were cited as new and lower projections of storage requirements and lack of Congressional authority to fully implement the original policy.

The record of this proceeding indicates a general commitment on the part of industry to do whatever is necessary to avoid shutting down reactors or derating them because of filled spent fuel storage pools. While industry's incentive for keeping a reactor in operation no longer applies after expiration of its operating license, utilities possessing spent fuel are required to be licensed and to maintain the fuel in safe storage until removed from the site. Industry's response to the change in DOE's policy on federally-sponsored away-from-reactor (AFR) storage was basically a commitment to do what is required of it, with a plea for a clear unequivocal Federal policy. * * * The Nuclear Waste Policy Act of 1982 has now provided that policy.

The Nuclear Waste Policy Act defines public and private responsibilities for spent fuel storage and provides for a limited amount of federally-supported interim storage capacity. The Act also includes provisions for monitored retrievable storage facilities and for a research development and demonstration program for dry storage. The Commission believes that these provisions provide added assurance that safe independent onsite or offsite spent fuel storage will be available if needed. [References omitted]

The policy set forth in the NWPA regarding interim storage remains in place. Therefore, the Commission's confidence remains unchanged. The only policy change affecting storage involves long-term storage in an MRS. The NWPA sets schedule restrictions on an MRS by trying it to the repository siting and licensing schedule. These restrictions effectively delay implementation of an MRS. Consequently, its usefulness in providing storage capacity relief to utilities is likely to be lost.

Although the Commission's confidence in its 1984 Decision did not depend on the availability of an MRS facility, the possibility of such a facility, as provided for in the NWPA, was one way in which needed storage could be made available. The NWPA makes an MRS facility less likely by linking it to repository development. The potential impact of the decreased likelihood of an MRS on the Commission's confidence is, however, more than compensated for by

operational and planned spent fuel pool expansions and dry-storage investments by utilities themselves—developments that had not been made operational at the time of the original Waste Confidence Decision. Consequently, the statutory restrictions that may make an MRS ineffective for timely storage capacity relief are of no consequence for the Commission's finding of confidence that adequate storage capacity will be made available if needed.

Although the NWPA limits the usefulness of an MRS by linking its availability to repository development, the Act does provide authorization for an MRS facility. The Commission has remained neutral since its 1984 Waste Confidence Decision with respect to the need for authorization of an MRS facility. The Commission does not consider the MRS essential to protect public health and safety. If any offsite storage capacity is required, utilities may make application for a license to store spent fuel at a new site. Consequently, while the NWPA provision does affect MRS development and therefore can be said to be limiting, the Commission believes this should not affect its confidence in the availability of safe storage capacity.

5.B. Relevant Issues That Have Arisen Since the Commission's Original Decision on Finding 5

DOE will not be able to begin operation of a repository before 2003 under current plans, and operation might begin somewhat later. Given progress to date on an MRS, the link between MRS facility construction and repository construction authorization established by the NWPA, and the absence of other concrete DOE plans to store the spent fuel, it seems unlikely that DOE will meet the 1998 deadline for taking title to spent fuel. (Under section 302(a)(5)(B) of the NWPA, " * * * the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel [subject to disposal contracts].") This potential problem does not, however, affect the Commission's confidence that storage capacity will be made available as needed.

The possibility of a dispute between DOE and utilities over the responsibility for providing spent fuel storage will not affect the public health and safety or the environment. Uncertainty as to contractual responsibilities raises questions concerning: (1) Who will be responsible; (2) at what point in time responsibility for the spent fuel will be transferred; (3) how the fuel will be

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managed; (4) how the transfer of management responsibility from the utilities to DOE will take place; and (5) how the cost of DOE storage might differ, if at all, from utility storage. Utilities possessing spent fuel in storage under NRC licenses cannot abrogate their safety responsibilities, however. Until DOE can safely accept spent fuel, utilities or some other licensed entity will remain responsible for it. If DOE and the utilities can amicably resolve their respective responsibilities for spent fuel storage in the interest of efficient and effective administration of the overall waste management system, including the Nuclear Waste Fund, NRC would gain added confidence in the institutional arrangements for spent fuel management (see also Finding 3 on this issue).

Estimates of the amount of spent fuel generated have continued to decline. At the time of the Commission's Decision, the Commission cited in Finding 5 the cumulative figure of 58,000 metric tons uranium of spent fuel generated in the year 2000 (See 49 FR 34658, p. 34697, August 31, 1984.) More recently, DOE estimated 40,384 metric tons (See "Spent Fuel Storage Requirements," DOE/RL-88-34, October 1988, p. A. 17). Although estimates may show an increase at some date well into the twenty-first century if licenses of some reactors are renewed or extended, this possibility does not affect the Commission's confidence in the availability of safe storage capacity until a repository is operational. The industry has made a general commitment to provide storage capacity, which could include away-from-reactor (AFR) storage capacity. To date, however, utilities have sought to meet storage capacity needs at their respective reactor sites. Thus, a new industry application for AFR storage remains only a potential option, which currently seems unnecessary and unlikely.

Utilities have continued to add storage capacity by reracking spent fuel pools, and NRC expects continued reracking where it is physically possible and represents the least costly alternative. Advances in dry-storage technologies and utility plans both have a positive effect on NRC's confidence. At the time the Commission reached its original findings, dry storage of LWR spent fuel was, as yet, unlicensed under 10 CFR Part 72, and DOE's dry-storage demonstrations in support of dry-cask storage were in progress at the Idaho National Engineering Laboratory (INEL).

Today, DOE's demonstration efforts have been successful (See Godlewski, N. Z., "Spent Fuel Storage—An Update,"

Nuclear News, Vol. 30, No. 3 March 1987, pp. 47-52, at p. 47.) Dry storage has been licensed at two reactor sites, and a third application is under review. Dry cask storage is licensed at Virginia Electric Power Company's Surry Power Station site (see License, SNM 2501 under Docket No. 72-2), and dry-concrete module and stainless-steel canister storage is licensed at Carolina Power and Light Company's (CP&L's) H. B. Robinson, Unit 2, site (see License SNM 2502, under Docket No. 72-3). An application is under review for a similar modular system at Duke Power Company's Oconee Nuclear Station site (See Letter to Director, Division of Fuel Cycle and Material Safety, NRC, from Hal B. Tucker, Duke Power Company, dated March 31, 1988, under Docket No. 72-4). A new application has been received in 1989 for CP&L's Brunswick site, and another is expected in 1989 for the Baltimore Gas and Electric Company's Calvert Cliffs site. Applications are also expected for CP&L's Robinson 2 site (at another onsite location to allow for greater storage capacity), Wisconsin Electric Power Company's Point Beach site, and Consumer Power's Palisades site. The Tennessee Valley Authority has indicated that it will apply for its Sequoyah plant site.

Thus, the successful demonstration by DOE of dry cask technology for various cask types at INEL, utilities' actions to forestall spent fuel storage capacity shortfalls, and the continuing sufficiency of the licensing record for the Commission to authorize increases in at-reactor storage capacity all strengthen the Commission's confidence in the availability of safe and environmentally sound spent fuel storage capacity.

Renewal of reactor OLS will involve consideration of how additional spent fuel generated during the extended term of the license will be stored onsite or offsite. There will be sufficient time for construction and licensing of any additional storage capacity needed.

In summary, the Commission finds no basis to change the Fifth Finding in its Waste Confidence Decision. Changes by the NWPAA, which lessen the likelihood of an MRS facility, and the potential for some slippage in repository availability to the first quarter of the twenty-first century (see our discussion of Finding 2) are more than offset by the continued success of utilities in providing safe at-reactor-site storage capacity in reactor pools and their progress in providing independent onsite storage. Therefore, the Commission continues to find " * * * reasonable assurance that safe independent onsite

spent fuel storage or offsite spent fuel storage will be made available if such storage is needed."

Dated at Rockville, Maryland, this 25th day of September, 1989.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Assistant Secretary of the Commission.

54 FR 43576

Published 10/26/89

Effective 10/26/89

10 CFR Part 51

RIN 3150-AD41

Clarifying Amendment Relating to Enforcement Activities

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its environmental regulations to make clear that the provision excluding NRC enforcement activities from the requirements of the National Environmental Policy Act of 1969, as amended, not only encompasses formal enforcement actions but also encompasses informal administrative mechanisms relating to enforcement such as bulletins, information notices, generic letters, notices of deviation, notices of nonconformance and confirmatory action letters. This minor amendment will help to clarify the manner in which this provision will be applied.

EFFECTIVE DATE: October 26, 1989.

FOR FURTHER INFORMATION CONTACT: Stuart A. Treby, Assistant General Counsel for Rulemaking and Fuel Cycle, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone (301) 492-1636.

SUPPLEMENTARY INFORMATION: On March 12, 1984 (49 FR 9352), the Commission promulgated final regulations implementing section 102(2) of the National Environmental Policy Act of 1969, as amended, (NEPA) in a manner which is consistent with the NRC's domestic licensing and related regulatory authority. These regulations, 10 CFR part 51, subpart A, reflect the Commission's policy of developing regulations voluntarily subject to certain conditions to take account of the regulations of the Council on Environmental Quality (CEQ) implementing the procedural provisions of NEPA. Section 51.14(b) of the NRC regulations adopts certain definitions used in the CEQ regulations. These definitions include the definition of

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"Major Federal action" in 40 CFR 1508.18.¹ As this definition makes clear, for NEPA purposes, the term "Major Federal action" does not include " * * bringing judicial or administrative civil or criminal enforcement actions * * *." This portion of the CEQ definition of "Major Federal action" is highlighted in § 51.10 of the Commission's regulations which addresses the purpose and scope of NRC's regulations implementing section 102(2) of NEPA and states in paragraph (d):

(d) Commission actions initiating or relating to administrative or judicial civil or criminal enforcement actions or proceedings are not subject to section 102(2) of NEPA. These actions include issuance of notices, orders, and denials of requests for action pursuant to subpart B of part 2 of this chapter, and matters covered by part 15 and 160 of this chapter.

Although the Commission's regulations make clear that enforcement matters are not subject to the NEPA process, there has been some uncertainty as to whether certain types of informal administrative actions used by the NRC staff as an adjunct to the Commission's formal enforcement

¹ 40 CFR 1508.18 states: " 'Major Federal action' includes actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforcers but does not have a meaning independent of significantly (§ 1508.27). Actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.

"(a) Actions include new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals (§§ 1508.8, 1508.17). Actions do not include funding assistance solely in the form of general revenue sharing funds, distributed under the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. 1221 et seq., with no Federal agency control over the subsequent use of such funds. Actions do not include bringing judicial or administrative civil or criminal enforcement actions.

"(b) Federal actions tend to fall within one of the following categories:

"(1) Adoption of official policy, such as rules, regulations, and interpretations adopted pursuant to the Administrative Procedure Act, 5 U.S.C. 551 et seq.; treaties and international conventions or agreements; formal documents establishing an agency's policies which will result in or substantially alter agency programs.

"(2) Adoption of formal plans, such as official documents prepared or approved by federal agencies which guide or prescribe alternative uses of federal resources, upon which future agency actions will be based.

"(3) Adoption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.

"(4) Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as federal and federally assisted activities."

mechanisms, which include the issuance of orders pursuant to 10 CFR part 2, subpart B, are intended to be included within the scope of 10 CFR 51.10(d). See 10 CFR part 2, Appendix C, General Statement of Policy and Procedure for NRC Enforcement Actions, section V.H. These informal administrative actions include, among others, various written notices such as bulletins, information notices, generic letters, notices of deviation or non-conformance and confirmatory action letters. As use of the word "include" in the second sentence of § 51.10(d) makes clear, § 51.10(d) does not purport to provide a comprehensive list of Commission activities relating to enforcement. The types of enforcement actions mentioned were intended to be only illustrative.

As described in the Commission's General Statement of Policy on Enforcement, "Confirmatory Action Letters are letters confirming a licensee's or a vendor's agreement to take certain actions to remove significant concerns about health and safety, safeguards, or the environment." A confirmatory action letter is an informal enforcement tool issued by the NRC staff pursuant to 10 CFR part 2, Appendix C, V, H, 3. The letter memorializes commitments made by the licensee to the NRC staff that the licensee will take certain specific actions with regard to a facility.

The NEPA status of such informal tools, including resumption of plant operation, was not explicitly addressed in § 51.10 since the Commission believed, as it argued in *Commonwealth of Massachusetts v. United States Nuclear Regulatory Commission*, No. 88-2211, that such informal enforcement tools did not involve agency action. However, in that case the First Circuit Court of Appeals concluded that resumption of operation of the Pilgrim facility, after an extended shutdown for corrective actions reflected in a Confirmatory Action Letter, involved NRC action to reinstate the license. The Court went on to uphold the NRC actions against related challenges. The case did not raise and the Court did not address any NEPA related issues.

Licensee actions undertaken voluntarily, as documented in a confirmatory action letter, are generally directed to restoring compliance with NRC regulations, thereby enabling the licensee to resume licensed activities. Consequently, the only environmental effects of the licensee's voluntary actions to reestablish that licensed activities will be undertaken in accordance with the license are those evaluated at the time the facility or activity was licensed and assessed in the NRC Environmental Impact Statement prepared in connection with the initial issuance of the license and in

subsequent environmental evaluations in connection with license amendments. The environmental effects of NRC activities associated with the supervision of such licensee actions, including NRC approval and supervision of the licensee's subsequent resumption of licensed activities are the same and do not require additional environmental review.

Although the Commission did not intend § 51.10(d) of its NEPA regulations to be read as if it applied exclusively to the types of enforcement activities specifically enumerated therein, it recognizes that clarification would be helpful. Accordingly, the Commission is promulgating this final rule.

It should be clearly understood that it has always been contemplated, under § 51.10(d), that when licensee actions to remediate the matters underlying the enforcement action have been completed to the satisfaction of the Commission, the conditions of operation previously reviewed in an environmental context will be restored. Accordingly, when the NRC authorizes licensed activities to resume, no additional environmental review pursuant to NEPA or the Commission's regulations is needed. If it should be necessary for the licensee to obtain a license amendment to restore compliance with the Commission's safety requirements in order to satisfy the concerns underlying the enforcement action, any environmental effects associated with issuance of the license amendment would either be addressed in an Environmental Assessment or encompassed by a categorical exclusion under 10 CFR 51.22(c). In this way, appropriate consideration of any environmental impact would be assured.

Because this amendment is merely clarifying and interpretative in nature, relates solely to matters of agency practice and does not involve a significant question of policy, good cause exists for omitting notice of proposed rulemaking and public procedures thereon as unnecessary and for making the amendment effective upon publication in the **Federal Register** without the customary thirty day notice.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final regulation.

Paperwork Reduction Act Statement

This final rule contains no new or amended information collection requirements and therefore is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

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Regulatory Analysis

Questions have arisen as to whether 10 CFR 51.10(d), which excludes Commission actions relating to enforcement from the NEPA process, encompasses informal administrative actions such as those described in section V.H. of the Commission's General Statement of Policy and Procedure for NRC Enforcement Actions, 10 CFR part 2, Appendix C, *i.e.*, bulletins, information notices, generic letters, notices of deviation or nonconformance and confirmatory action letters. Section 51.10(d) of the Commission's regulations is not limited to a portion of the Commission's enforcement activities but is all-inclusive. The NRC staff has a need to assure a uniform understanding of the scope of actions encompassed by this regulation. This rule change revising the text of § 51.10(d) to make clear that it applies to the entire spectrum of the Commission's enforcement activities is the appropriate means to achieve this end.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because this amendment to 10 CFR 51.10(d) does not contain any provisions which impose backfits as defined in 10 CFR 50.109(a)(1) and therefore a backfit analysis is not required.

List of Subjects in 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set forth in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the National Environmental Policy Act of 1969, as amended, and 5 U.S.C. 552 and 533, the NRC is adopting the following amendment to 10 CFR part 51:

54 FR 50735
Published 12/11/89.

*Early Site Permits; Standard Design
Certifications; and Combined Licenses
for Nuclear Power Reactors; Correction*

See Part 52 Statements of Consideration

54 FR 53312
Published 12/28/89.
Effective 12/28/89

*Statement of Organization and General
Information; Minor Amendments*

See Part 1 Statements of Consideration

55 FR 38472
Published 9/18/90
Effective 10/18/90

10 CFR Part 51

RIN 3150-AD26

Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is revising its generic determinations on the timing of availability of a geologic repository for commercial high-level radioactive waste and spent fuel and the environmental impacts of storage of spent fuel at reactor sites after the expiration of reactor operating licenses. These revisions reflect findings of the Commission reached in a five-year update and supplement to its 1984 "Waste Confidence" rulemaking proceeding, which are published elsewhere in this issue of the *Federal Register*. The Commission now finds that spent fuel generated in any reactor can be stored safely and without significant environmental impacts in reactor facility storage pools or independent spent fuel storage installations located at reactor or away-from-reactor sites for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license). Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

EFFECTIVE DATE: October 18, 1990.
FOR FURTHER INFORMATION CONTACT: John P. Roberts, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 492-0608.

SUPPLEMENTARY INFORMATION:

Background

In 1984, the Commission concluded a generic rulemaking proceeding, the "Waste Confidence" proceeding, to reassess its degree of confidence that radioactive wastes produced by nuclear facilities will be safely disposed of, to determine when any such disposal would be available, and whether such wastes can be safely stored until they

are safely disposed of. The Commission found that there was reasonable assurance that one or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by 2007-2009. However, some reactor operating licenses might expire without being renewed or some reactors might be permanently shut down prior to this period. Since independent spent fuel storage installations had not yet been extensively developed, there was a probability that some onsite spent fuel storage after license expiration might be necessary or appropriate. In addition, the possibility existed that spent fuel might be stored in existing or new storage facilities for some period beyond 2007-2009. The Commission also found that the licensed storage of spent fuel for at least 30 years beyond the reactor operating license expiration either at or away from the reactor site was feasible, safe, and would not result in a significant impact on the environment.

Consequently, the Commission adopted a rule, codified in 10 CFR 51.23, providing that the environmental impacts of at-reactor storage after the termination of reactor operating licenses need not be considered in Commission proceedings related to issuance or amendment of a reactor operating license. The same safety and environmental considerations applied to fuel storage installations licensed under part 72 as for storage in reactor basins. Accordingly, the rule also provided that the environmental impacts of spent fuel storage at independent spent fuel storage installations for the period following expiration of the installation storage license or amendment need not be considered in proceedings related to issuance or amendment of a storage installation license.

Amendment to Part 51

At the time of issuance of its Waste Confidence decision and the adoption of 10 CFR 51.23, the Commission also announced that while it believed that it could, with reasonable assurance, reach favorable conclusions of confidence, it also recognized that significant unexpected events might affect its decision.

Consequently, the Commission stated that it would "review its conclusions on waste confidence should significant and pertinent unexpected events occur, or at least every 5 years until a repository for high-level radioactive waste and spent fuel is available." The Commission has now completed a five-year review of its earlier findings. A description of this review and the supplement and update to the earlier findings is announced elsewhere in this issue. As a result of this review, the Commission is modifying two of its earlier findings as follows:

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The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time; and The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

In this proceeding, the Commission is revising 10 CFR 51.23(a) to be consistent with these revisions to the Waste Confidence decision.

Summary of Comments

The Commission received 11 comments on its proposed revision to 10 CFR 51.23(a) from the following entities listed in the order of receipt of comments:

Duke Power Company
Public Citizen
Edison Electric Institute
Malachy Murphy (State of Nevada)
Yankee Atomic Electric Company
Department of Energy (DOE)
Philadelphia Electric Company
Commonwealth Edison
Virginia Electric and Power Company
Marvin I. Lewis, Registered Professional Engineer
Florida Power & Light

The revision to this rule was supported by Duke Power Company, Edison Electric Institute, Yankee Atomic Electric Company, Department of Energy, Philadelphia Electric Company, and Virginia Electric and Power Company and generally supported by Commonwealth Edison.

Malachy Murphy, for the State of Nevada, suggests that 10 CFR 51.23(a) be amended to reflect reasonable assurance that spent fuel can be stored safely and without significant environmental risk in dry casks at reactor sites for up to one hundred years. The Commission, in the notice of proposed rulemaking, discussed its conclusion that even if storage of spent fuel were necessary for at least thirty years beyond the licensed life for operation of reactors, which for a reactor whose license is renewed for thirty years would mean a period of at least 100 years, such storage is feasible, safe and would not result in a significant impact on the environment. The Commission's conclusion on this issue considers both wet and dry storage. Although the Commission does not

dispute the statement that dry spent fuel storage is safe and environmentally acceptable for a period of 100 years, the Commission does not find it necessary to make that specific finding in this proceeding.

Marvin I. Lewis avers that 100 years is an excessive amount of time to predict that at-reactor storage will be available and safe. The commenter suggests that our institutions may not survive in a form that will provide safe onsite storage 100 years in the future. The commenter requests that the Commission reverse its finding that storage will be available and safe for 100 years. The Commission does not agree with the commenter that this finding should be reversed. The Commission believes that adequate regulatory authority exists and will remain available to require any measures necessary to assure safe storage of spent fuel.

Conclusions

The Commission is adopting the proposed revision with one small clarifying change. The proposed revision to 10 CFR 51.23(a) (and the proposed revision to the Waste Confidence decision) stated that spent fuel can be stored safely for at least 30 years beyond the licensed life for operation of any reactor which may include the term of a "revised license." As the discussion in the notice made explicit, the term "revised" license was intended to embrace a "renewed" license. To reflect more accurately the inclusion of the term of a renewed license, the parenthetical phrase which refers to this subject is being revised to read: "which may include the term of a revised or renewed license."

The necessity for the proposed revisions to the Waste Confidence decision and to 10 CFR 51.23(a) is based on the timing of repository availability, and premised on the following factors: The potential for delays in DOE's program; the mandate of the Nuclear Waste Policy Act Amendments of 1987 to characterize only the Yucca Mountain site which means that if that site is found unsuitable, characterization will have to begin at another site or suite of sites with consequent delay in repository availability; the regulatory need to avoid premature commitment to the Yucca Mountain site; and the questionable value of making predictions about completion of a project as complex and unique as the repository in terms of years when decades would be more realistic. But even with this change the Commission has concluded that it has reasonable assurance that on such a schedule for repository availability, sufficient repository capacity will be available within 30 years beyond the licensed life

for operation of reactors. Adequate regulatory authority is available to require any measures necessary to assure safe storage of the spent fuel until a repository is available. In addition, the Commission has concluded that even if storage of spent fuel were necessary for at least 30 years beyond the licensed life of reactors, which in the case of a reactor whose operating license is renewed for 30 years would mean for a period of at least 100 years, such storage is feasible, safe and would not result in a significant impact on the environment.

The Commission's conclusions with respect to safety and environmental impacts of extended storage are supported by NRC's Environmental Assessment (EA) for the 10 CFR part 72 rulemaking "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste" (53 FR 31651, August 19, 1988). Ongoing licensing and operational experience as well as studies of extended pool storage continue to demonstrate that such storage is a benign environment for spent fuel which does not lead to significant degradation of spent fuel integrity. Significant advances in the processes of dry storage of spent fuel continue to demonstrate that dry storage systems are simple, passive and easily maintained. NRC staff safety reviews of topical reports on dry storage system designs and dry storage installations at two reactor sites, as well as the EA for part 72, support the finding that storage of spent fuel in such installations for a period of 70 years does not significantly impact the environment. No significant additional non-radiological consequences which could adversely effect the environment for extended storage at reactors and independent spent fuel storage installations have been identified. In sum, the long-term material and system degradation effects are well understood and known to be minor, the ability to maintain a spent fuel storage system is assured, and the Commission maintains regulatory authority over any spent fuel storage installation.

Environmental Impact

This final rule amends 10 CFR part 51 of the Commission's regulations to modify the generic determination currently codified in part 51 which was made by the Commission in the Waste Confidence rulemaking proceeding. That generic determination was that for at least 30 years beyond the expiration of a reactor's operating license no significant environmental impacts will result from the storage of spent fuel in reactor facility storage pool or independent spent fuel storage installations located

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at reactor or away-from-reactor sites. The modification provides that, if necessary, spent fuel generated in a reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation of any reactor. The licensed life for operation of a reactor may include the term of a revised or renewed license. The environmental analysis on which the revised generic determination is based can be found in the revision and supplement to the Waste Confidence findings published elsewhere in this issue. This final rulemaking action formally incorporating the revised generic determination in the Commission's regulations does not have separate independent environmental impact. The supplemental assessment and revisions to the Waste Confidence findings are available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0021.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The rule describes a revised basis for continuing in effect the current provisions of 10 CFR 51.23(b) which provides that no discussion of any environmental impact of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations [ISFSI] for the period following the term of the reactor operating license or amendment or initial ISFSI license or amendment for which application is made is required in any environmental report, environmental impact statement, environmental assessment or other analysis prepared in connection with certain actions. This rule affects only the licensing and operation of nuclear power plants. Entities seeking or holding Commission licenses for such facilities do not fall within the scope of the definition of small businesses found in section 34 of the Small Business Act, 15 U.S.C. 632, in the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121, or in the NRC's size standards published December 9, 1985 (50 FR 50241).

Backfit Analysis

This final rule does not modify or add to systems, structures, components or design of a facility; the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility. Accordingly, no backfit analysis pursuant to 10 CFR 50.109(c) is required for this final rule.

List of Subjects in 10 CFR Part 51

Administration practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 51.

55 FR 38474

Published 9/18/90

10 CFR Part 51

Waste Confidence Decision Review

AGENCY: Nuclear Regulatory Commission.

ACTION: Review and Final Revision of Waste Confidence Decision.

SUMMARY: On August 31, 1984, the Nuclear Regulatory Commission (NRC) issued a final decision on what has come to be known as its "Waste Confidence Proceeding." The purpose of that proceeding was "...to assess generically the degree of assurance now available that radioactive waste can be safely disposed of, to determine when such disposal or offsite storage will be available and to determine whether radioactive waste can be safely stored onsite past the expiration of existing facility licenses until offsite disposal or storage is available." (49 FR 34658). The Commission noted in 1984 that its Waste

Confidence Decision was unavoidably in the nature of a prediction, and committed to review its conclusions "...should significant and pertinent unexpected events occur or at least every five years until a repository is available." The purpose of this notice is to present the findings of the Commission's first review of that Decision.

The Commission has reviewed its five findings and the rationale for them in light of developments since 1984. This revised Waste Confidence Decision supplements those 1984 findings and the environmental analysis supporting them. The Commission is revising the second and fourth findings in the Waste Confidence Decision as follows:

Finding 2: The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

Finding 4: The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

The Commission is reaffirming the remaining findings. Each finding, any revisions, and the reasons for revising or reaffirming them are set forth in the body of the review below.

The Commission also issued two companion rulemaking amendments at the time it issued the 1984 Waste Confidence Decision. The Commission's reactor licensing rule, 10 CFR part 50, was amended to require each licensed reactor operator to submit, no later than five years before expiration of the operating license, plans for managing spent fuel at the reactor site until the spent fuel is transferred to the Department of Energy (DOE) for disposal under the Nuclear Waste Policy Act of 1982 (NWPA). 10 CFR part 51, the rule defining NRC's responsibilities under the National Environmental Policy Act (NEPA), was amended to provide that, in connection with the issuance or amendment of a reactor operating license or initial license for an independent spent fuel storage installation, no discussion of any

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environmental impact of spent fuel storage is required for the period following expiration of the license or amendment applied for.

In keeping with the revised Findings 2 and 4, the Commission is providing elsewhere in this issue of the **Federal Register** conforming amendments to its 10 CFR part 51 rule providing procedures for considering in licensing proceedings the environmental effects of extended onsite storage of spent fuel.

Finally, the Commission is extending the cycle of its Waste Confidence reviews from every five years to every ten until a repository becomes available. In its 1984 Decision, the Commission said that because its conclusions were "...unavoidably in the nature of a prediction," it would review them "...should significant and pertinent unexpected events occur, or at least every five years until a repository...is available." As noted below, the Commission now believes that predictions of repository availability are best expressed in terms of decades rather than years. To specify a year for the expected availability of a repository decades hence would misleadingly imply a degree of precision now unattainable. Accordingly, the Commission is changing its original commitment in order to review its Waste Confidence Decision at least every ten years. This would not, however, disturb the Commission's original commitment to review its Decision whenever significant and pertinent unexpected events occur. The Commission anticipates that such events as a major shift in national policy, a major unexpected institutional development, and/or new technical information might cause the Commission to consider reevaluating its Waste Confidence Findings sooner than the scheduled ten-year review.

FOR FURTHER INFORMATION CONTACT:

John Roberts, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (202) 492-0608.

SUPPLEMENTARY INFORMATION:

Analysis of Public Comments on the Proposed Waste Confidence Decision Review.

1.0 Introduction

Comments were received from a Federal agency, the public interest sector, the nuclear industry, and one State as listed below in order of their receipt:

Duke Power Company
Public Citizen
Edison Electric Institute
Malachy Murphy (State of Nevada)

Yankee Atomic Electric Company
Department of Energy
Philadelphia Electric Company
Commonwealth Edison
Virginia Electric and Power Company
Marvin I. Lewis, Registered Professional Engineer*

Florida Power & Light Company

The majority of the commenters were supportive of the Commission's proposed decision and rule. The comments were consolidated into a total of 19 issues to be addressed. Each of these issues is discussed under the Commission finding to which it relates. Two additional issues, not raised by commenters, are treated under the heading "Other Relevant Issues." The "Other Relevant Issues" section includes consideration of the petition by the State of Vermont to intervene in the consideration of the extension of the operating license for Vermont Yankee and the potential for non-payment of the one-time fee for spent nuclear fuel generated prior to April 1983 into the Nuclear Waste Fund.

2.0 Analysis of Issues Related to Commission Findings

2.1 The Commission's First Finding

The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

Issue No. 1: Technical Feasibility of Safe Disposal in a Mined Geologic Repository

Comment

The commenter representing Public Citizen (PC) stated that there is still not adequate assurance that permanent, safe disposal of high-level radioactive waste in a mined geologic repository is technically feasible. In support of this, the commenter indicated that a number of major scientific panels have pointed out that there is no technical or scientific basis for knowing for sure that geologic disposal is possible. As an example, PC stated that President Carter's Office of Science and Technology Policy (OSTP) found in 1979 a rather general consensus among scientists that a technology base "sufficient to permit complete confidence in the safety of any particular repository design or the suitability of any particular site" was still lacking. PC further stated that more recently, a Waste Isolation Systems Panel of the National Academy of Sciences pointed out many areas of the geologic disposal problem where technical uncertainties exist, and where "more information is needed." PC also stated that the technical difficulties presented by a million-year disposal

problem are unprecedented and enormous, and that there have been no major findings since (the above studies) that have resolved the uncertainties to the point where it is possible to be *assured* that geologic disposal is technically feasible.

NRC Response

The issue of the technical feasibility of the safe disposal of spent nuclear fuel and radioactive waste has been addressed at length in the Commission's 1989 Proposed Waste Confidence Decision Review (54 FR 39767; September 28, 1989) as well as in the original 1984 Waste Confidence Decision (49 FR 34658; August 31, 1984). While those discussions addressed the concerns raised by the comment, it is useful to provide additional specific responses to them. The comment that major scientific panels have pointed out that there is no technical or scientific basis for knowing for sure that geologic disposal is possible makes reference to President Carter's OSTP statement in 1979. Contrary to the comment, the OSTP statement does not support the contention that there is no technical or scientific basis for knowing for sure that geologic disposal is possible. Rather, it remarks on the lack of a technology base sufficient to permit complete confidence in the safety of any particular repository design or the suitability of any particular site. The information base necessary to license a repository is still being developed. This includes information on site characterization, repository design, waste package design, and the performance assessment of the entire disposal system. The complete body of such necessary information is expected to be in hand only at the completion of the developmental studies and characterization work being undertaken by the DOE. It is at this point that the DOE will be in a position to apply for a license from the NRC and seek NRC's approval of the safety of its proposed site and repository design.

The Commission also notes that the OSTP statement was made over a decade ago, prior to the completion of a substantial amount of work which has addressed many of the issues related to disposal technology. While the Commission recognizes that more information is needed and that the technical difficulties are challenging, there is no basis to believe that safe disposal in a repository is impossible, or even that it is not likely. No major breakthrough in technology is required to develop a mined geologic repository. Rather, there is a need to add to the current extensive body of technical

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information already available and apply it to an evaluation of specific sites and engineering designs.

Regarding the commenter's emphasis on the need for resolution of uncertainties to assure the technical feasibility of geologic disposal, we would respond that the Commission did not state that the feasibility of a mined geologic repository was assured, in the absolute sense, but that it had found reasonable assurance in the feasibility of mined geologic disposal on the basis of a thorough review of the technologies needed to achieve this disposal.

Issue No. 2: Difficulty in Evaluating Compliance with Repository Safety Standards Over Long Time Periods

Comment

The PC commenter also raised the issue of what he termed the "inability to predict with a reasonable degree of certainty that, once buried, the waste will remain contained [in the geologic repository] for the required time period." The commenter noted uncertainties related to geologic stability, engineered barriers, rock-waste interactions, and groundwater hydrology which contribute to the difficulty of evaluating compliance with safety standards over the long time periods involved in radioactive waste isolation. The commenter concluded that although these problems may be able to be resolved, there is not a basis for assurance that this will be the case.

NRC Response

The NRC believes that existing safety assessment techniques have the potential to provide a basis for deciding whether proposed radioactive waste disposal systems are acceptable. We recognize the difficulty of predicting with a high degree of accuracy the maximum impacts a repository would have on human health and the environment, especially in the very far future. It will likely not be possible to test empirically the ability of models to predict long-term repository performance to the same extent as models for short-term performance. However, we believe existing technology can provide a sufficient level of safety for present and future generations under certain conditions. These conditions include addressing the uncertainties inherent in projecting far into the future and in modelling complex heterogeneous natural systems, and acquiring and evaluating data on specific sites.

We also note that the language of the original Environmental Protection Agency's (EPA) Environmental Radiation Standards for Management and Disposal of Spent Nuclear Fuel,

High-Level and Transuranic Wastes (40 CFR part 191) does not require absolute assurance that containment requirements will be met. Rather, it recognizes the uncertainties involved in projecting repository performance far into the future, and states "Instead, what is required is a reasonable expectation, on the basis of the record before the implementing agency, that compliance with Sec.191.13(a) will be achieved."

Issue No. 3: Unanticipated Difficulties in Developing the WIPP Facility

Comment

PC also indicated that the Waste Isolation Pilot Plant (WIPP) has not opened because of numerous unanticipated difficulties, including leakage of salt water into the site. PC states that this leakage, which was not anticipated prior to the beginning of construction in the early 1980s, shows that even on a scale of a few years, geologic events in a repository are unpredictable--to say nothing of events on a time scale of hundreds of thousands of years.

NRC Response

Although the NRC does not have oversight responsibility for the WIPP project, NRC does monitor DOE progress on WIPP insofar as it may offer valuable insight into efforts to license a repository for commercial high-level waste and spent fuel. For example, DOE must demonstrate compliance with the EPA standard in order to operate the WIPP facility. NRC cognizance of DOE efforts to implement the EPA Standard at WIPP could help provide information and consensus-building in the implementation of the EPA Standard for the commercial high-level waste repository.

The NRC does not consider the occurrence of brine pockets at the WIPP site as a factor that might diminish its confidence in the technical feasibility of a mined geologic repository. The Commission does not expect that site characterization of a candidate site will proceed free from all difficulty. We have urged DOE to establish a planning mechanism for timely development and implementation of contingency plans at Yucca Mountain to address problems during site characterization as they arise. DOE has announced a new focus on surface-based testing for the Yucca Mountain site in its Reassessment Report to Congress. Under this program, the primary goal of testing is to identify features of the site which would render it unsuitable for a repository. If such features are identified, DOE would notify Congress and the State of Nevada, and terminate site specific

activities. A finding that the Yucca Mountain site is unsuitable would likely lead to delays in repository availability while another candidate site is identified and characterized, however it would not diminish confidence in the technical feasibility of geologic disposal.

Issue No. 4: Impact of the BEIR V Report on the Commission's Decision

Comment

Marvin Lewis drew attention to the recent findings of the Committee on the Biological Effects of Ionizing Radiation (BEIR V) in their report on the Health Effects of Exposure to Low Levels of Ionizing Radiation. The commenter stated that the BEIR V study indicated that the danger from radioactivity is four or more times higher than previously known. The commenter further stated that the BEIR V findings will require that the NRC change many of its radiation protection guidelines and rules. He also requested that the NRC stop all action on the Waste Confidence Decision Review until the Commission can determine the effect of the BEIR V report on the Decision.

NRC Response

The Commission has been aware for some time of the scientific data underpinning the estimate of risk from radiation exposure contained in the BEIR V report. Much of this information has been incorporated in the Commission's forthcoming revisions to its radiation protection requirements (10 CFR part 20). For reasons stated below, however, the Commission does not foresee any impact of the BEIR V report on the Waste Confidence Decision.

The BEIR V report is the latest in a series of reports dealing principally with the effects of low-LET radiation in humans, e.g., radiation such as beta particles and gamma photons. The report covers radiation carcinogenesis, genetic effects, and effects on the developing embryo/fetus. The report also includes new information related to the dosimetry of the Japanese atomic bomb survivors, and new epidemiological information. The NRC staff, other Federal agencies, and national and international organizations are currently reviewing both the BEIR V report and the report issued in 1988 by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

The estimates of risk due to low-LET radiation in the BEIR V report are based principally upon effects observed in populations exposed to high doses and at high dose rates. These effects are then extrapolated using statistical modeling to predict effects at low doses

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and dose rates. The extrapolations to low dose and dose rate lead to significant uncertainties in the estimates of risk in the BEIR V report. The estimates of risk for fatal cancer induction in the BEIR V report are from three to four times larger than the estimate from the preferred model of the BEIR III report in 1980. However, the new BEIR V estimate is within the overall range of risk estimates and uncertainties from the different models presented in BEIR III.

It is important to note that the BEIR V report only addresses the issue of risk estimates for radiation effects. The BEIR committee did not make any recommendations on acceptable risk or on the potential impacts of the risk estimates to dose limits or standards for radiation protection. Efforts are underway by the International Commission on Radiological Protection (ICRP), National Council on Radiation Protection and Measurements (NCRP), and the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC) of the Executive Office of the President to reach some measure of consensus on the impacts of the revised risk estimates to radiation protection standards.

Under section 121(a) of the Nuclear Waste Policy Act (NWPA), NRC is required to issue technical requirements and criteria that it will apply in approving or disapproving a repository. These requirements and criteria must be consistent with the high-level waste disposal standards promulgated by the Environmental Protection Agency. Demonstration of compliance with the EPA standard was discussed under the rationale for Finding 1 in the Commission's Proposed Waste Confidence Decision Review.

The NRC does not believe that numerical criteria for individual protection requirements are at issue in its Waste Confidence Proceeding. The broader issue of demonstrating compliance with EPA release limits using probabilistic analyses was a concern of the NRC staff and the NRC's Advisory Committee on Nuclear Waste in preparing the Proposed Waste Confidence Decision Review. As stated in the Proposed Waste Confidence Decision Review, the NRC staff is closely monitoring EPA's progress on issuing its revised standards to assure that EPA methodologies for demonstrating compliance with them can be applied by NRC to evaluate DOE's demonstration of compliance. NRC will also monitor DOE efforts to demonstrate compliance with the EPA

standard at the Waste Isolation Pilot Plant facility for transuranic wastes.

2.2 The Commission's Second Finding

The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

Issue No. 5: Expected Date for Repository Availability

Comment

Malachy Murphy (State of Nevada) and Public Citizen expressed a lack of support for the Commission's proposed second finding. These commenters argue that the finding should be revised to reflect the 2010 date for repository availability announced in DOE's November 1989 Reassessment Report to Congress. They believe that the NRC's "confidence" date of 2025 for repository availability may be exceeded if the Yucca Mountain site is found to be unsuitable sometime after the year 2000 because there might not be enough time to locate, characterize, license and construct a repository at another site by 2025. The commenter from Public Citizen also finds that even if the Yucca Mountain site were found to be suitable, a repository there might not be available until after 2025. This commenter concluded that it would be more conservative to assume that four candidate sites would be found to be unsuitable during the course of site characterization and that there is no basis for assurance that a repository would be available before 2055.

NRC Response

The NRC does not believe it is necessary to change the proposed second finding to reflect DOE's revised date for repository availability of 2010. NRC anticipated an extension of several years in DOE's schedule when it issued its proposed revised second finding. NRC took the position that if the Yucca Mountain site were found to be unsuitable on or before the year 2000, it was reasonable to expect that an alternative site could be identified and developed in time for repository availability by 2025.

NRC continues to believe that if DOE determines that the Yucca Mountain site is unsuitable, it will make this determination by about the year 2000. DOE's program is now focused on surface-based testing designed to identify features of the site which would

render it unsuitable for a repository. The only significant barriers to DOE proceeding with site characterization at Yucca Mountain are the development of a quality assurance (QA) program acceptable to NRC, completion of study plans for site characterization activities they wish to begin, and resolution of the impasse between DOE and the State of Nevada regarding permits for drilling. DOE has made significant progress in the development of a QA program for its site characterization activities. It is possible that this work will be completed and accepted by late 1990 or early 1991. Regarding the impasse with the State of Nevada, both DOE and the State of Nevada have filed lawsuits in Federal Court in an effort to resolve the question of site access. While any litigation of this matter has the possibility of an unfavorable outcome for DOE, the Commission believes that Congress has aggressively demonstrated in both the Nuclear Waste Policy Act of 1982 and the Nuclear Waste Policy Amendments Act of 1987 that it is committed to an orderly progression of the repository program and a resolution of the radioactive waste disposal problem. Accordingly, NRC believes that it is reasonable to assume that Congress will not allow the uncertainties related to the start of site characterization to continue for many more years.

For these reasons, NRC believes that the coming decade will be ample time for the DOE to determine whether or not Yucca Mountain is unsuitable and to begin work on an alternate site, if necessary. We believe that Congress is committed to a resolution of the waste problem and will take measures to bring this issue to a close.

We would also point out here that the Court decision that led to the Waste Confidence Proceeding did not require NRC to determine when a repository would be available. The Court remanded to NRC the question of "...whether there is reasonable assurance that an offsite storage solution will be available by the years 2007-2009, the expiration of [Prairie Island and Vermont Yankee's] operating licenses, and if not, whether there is reasonable assurance that the fuel can be safely stored at the reactor sites beyond those dates." NRC chose as a matter of policy not to confine itself to the storage-related questions in the Court's remand, but to address the broader issues of whether radioactive wastes could be safely disposed of, when such disposal would be available, and whether such wastes can be safely stored until they are disposed of. NRC

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was not requested to determine nor has it made a determination that a repository must be available by 2025 in order to protect public health and safety.

NRC does not find a reasonable basis for the argument that even if the Yucca Mountain site were found to be suitable, it might not be available by the year 2025. Surface-based and in-situ testing are expected to take approximately ten years. The NWPA provides that NRC's review of DOE's license application is to be completed in three years (with the possibility of an additional year). Construction is scheduled to take another six years. Even if each of these activities were to take several years longer than planned, a repository at Yucca Mountain could be available well before the year 2025. The limiting condition appears to be the timing of DOE's access to the site to begin testing.

Finally, we do not believe it is realistic to assume for conservatism that four candidate sites will be found unsuitable before an acceptable site is characterized, licensed and built. To date, no candidate site for a repository has been found to be unsuitable for technical reasons. However, if the Yucca Mountain site is found to be unsuitable, an alternative site would have to undergo a similar process of site-screening and characterization to determine its suitability. We believe it is reasonable to expect that experience gained in the Yucca Mountain site characterization effort would provide a better basis for choosing an alternative site. Furthermore, it may be possible to complete site suitability testing at another site at a faster pace than at Yucca Mountain given the benefits of lessons-learned at that site.

Issue No. 6: Clarification of the NRC's Role in the Licensing Support System (LSS)

Comment

The DOE commented that it was not clear what NRC meant by the words "implementing it" in the statement "DOE has the responsibility for designing the LSS and bearing the costs associated with it and NRC will be responsible for implementing it."

NRC Response

In its Proposed Waste Confidence Decision Review, NRC included a description of the Licensing Support System (LSS) under its discussion of "Measures for dealing with Federal-State-Local concerns." The LSS is intended to provide participants in the repository licensing proceeding early access to documents relevant to the licensing decision.

To eliminate any confusion regarding NRC's responsibilities for the LSS, the

above sentence in the Proposed Decision Review will be eliminated and the following description will be inserted in its place: "DOE is responsible for the design, development, procurement and testing of the LSS. LSS design and development must be consistent with objectives and requirements of the Commission's LSS rulemaking and must be carried out in consultation with the LSS Administrator and with the advice of the Licensing Support System Advisory Review Panel. NRC (LSS Administrator) is responsible for the management and operation of the LSS after completion of the DOE design and development process."

Issue No. 7: Suggestion for Reducing Licensing Uncertainties Related to Spent Fuel Transshipments

Comment

Commonwealth Edison commented that in order to enhance the viability of the option of transferring spent fuel from retired reactors to others under active management, the NRC should reduce, to the maximum extent possible, licensing uncertainties related to such fuel transfers. The commenter also stated that by predetermining that spent fuel pool densification and alternative on-site spent fuel storage methods do not raise any significant hazards considerations, the NRC's final decision would be strengthened.

NRC Response

The Commission evaluates applications for modification of spent fuel storage at licensee's facilities or for transshipment from one site to another on an individual basis. Such a case-by-case consideration of the merits of each application ensures that all significant safety issues are addressed in a thorough manner and provides a conservative approach for arriving at a decision on the merits of the license application.

Issue No. 8: Appropriate Use of Nuclear Waste Fund Monies

Comment

Commonwealth Edison Company (CECo) refers to the NRC's statement that DOE could accept responsibility for management of spent fuel until a repository is available in the event that a licensee becomes insolvent prior to the time a geologic repository is ready to accept spent fuel. Funds from either the Nuclear Waste Fund (NWF) or from the utility itself could be used (54 FR 39767, at 39786 and 39790). CECo comments that the use of the NWF monies for this purpose would involve the solvent utilities funding the storage of spent fuel generated by the bankrupt licensees. CECo believes that it is not clear

whether the Nuclear Waste Policy Act would allow NWF monies to be used for this purpose and suggests that NRC should seek and analyze comments on this issue. Until further evaluation and analysis has taken place, CECo believes NRC should delete this as a basis for confidence.

NRC Response

The Commission believes that there are two related issues presented in the above comment. The first is whether DOE can accept responsibility for spent fuel if a utility is insolvent or otherwise no longer capable of managing it. A second related issue is, given DOE's acceptance of responsibility for the spent fuel, where would DOE obtain the funds needed to pay the costs of this responsibility? The NRC continues to believe that DOE would accept responsibility for spent fuel management in the event that a licensee is unable to exercise its own responsibility. Further, the NRC believes that DOE would have sufficient resources to carry out any safety-related measures.

As indicated in the discussion under Issue 21, because DOE is not precluded from accepting responsibility for the waste in those situations, default is an issue of equity rather than public health and safety. As such, the Commission does not believe that a licensee's potential default has a direct bearing on the Commission's Waste Confidence Decision.

Nevertheless, because the source of funds, but not DOE's ultimate responsibility is ambiguous, the NRC has decided to change the references that CECo cites with the bracketed words to be deleted in the Final Waste Confidence Decision Review:

If for any reason not now foreseen, this spent fuel can no longer be managed by the owners of these reactors, and DOE must assume responsibility for its management earlier than currently planned, this quantity of spent fuel is well within the capability of DOE to manage onsite or offsite with available technology [financed by the utility either directly or through the Nuclear Waste Fund]. (p.39786, col.1)

Even if a licensed utility were to become insolvent, and responsibility for spent fuel management were transferred to DOE earlier than is currently planned, the Commission has no reason to believe that DOE would [have insufficient Nuclear Waste Fund resources or otherwise] be unable to carry out any safety-related measures NRC considers necessary. (p.39390, col.1)

Issue No. 9: Costs Incurred Due to Delayed Acceptance of Spent Fuel at Repository

Comment

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Commonwealth Edison Company (CECo) observed that additional costs will be incurred by licensees as a result of delayed acceptance of spent fuel at the repository. CECo believes that consideration should be given as to whether these costs will be covered by the Nuclear Waste Fund or whether the costs will be incurred directly by the licensee.

NRC Response

The Commission believes that this is a matter which will have to be resolved in another forum in the context of the contracts between DOE and the utilities/owners of spent fuel. The individual contracts currently specify the dates by which DOE has agreed to accept responsibility for the disposal of spent fuel. If DOE must delay its acceptance of spent fuel, the responsibility for the financial consequences of that default would have to be determined at that time by reference to and interpretation of the pertinent contracts. The ultimate answer to this question will not affect the findings of the Waste Confidence Decision.

Issue No. 10: Clarification of Discussion of Period of Safe Spent Fuel Storage at Dresden 1

Comment

Commonwealth Edison Company (CECo) comments that the discussion in the Proposed Decision Review of the possible extended storage of spent fuel from Dresden 1 is not clear and should be clarified. On the basis of assumptions discussed in the Proposed Decision Review, CECo concludes that three different dates could be derived to indicate the maximum time for onsite spent fuel storage. For Dresden 1, which was licensed to operate in 1959 and permanently shut down in 1978, 30 years after shutdown would yield a maximum date of 2008; 30 years after a full 40-year license term yields a maximum date of 2029; and 30 years after a full 40-year license term plus a 30-year extension of the operating license would yield a date of 2059.

NRC Response

The NRC believes that CECo has misinterpreted the discussion pertaining to the maximum term of onsite spent fuel storage in the Waste Confidence Decision and the bases and assumptions underlying that discussion as they pertain to the specific circumstances of Dresden 1. The generic discussion of the derivation of the maximum safe storage term for the purposes of the Waste Confidence Decision is contained in pp.39785-90 and pp.39783-96. The Commission concluded on a generic basis that "spent fuel generated in any

reactor can be stored safely and without significant environmental impacts in reactor facility storage pools or independent spent fuel storage installations located at-reactor or away-from-reactor sites for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations" (proposed 10 CFR 51.23(a) at p. 39968 (Finding 4) (emphasis added)). The discussion and findings were based on technical and institutional considerations that, for the sake of completeness, considered situations like those at Dresden 1 that differ from those with most reactors that are expected to operate to full term plus a possible extended license term. For Dresden 1, based on proposed § 51.23(a), the applicable storage period would be 30 years beyond the licensed life of operation, or until 2029.

2.3 The Commission's Third Finding

The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel.

Issue No. 11: Resolution of Contractual Conflicts Between DOE and Licensees

Comment

Commonwealth Edison Company (CECo) comments that the NRC has unnecessarily interjected itself into issues involved in the contracts between the DOE and licensees by NRC's statement that it would have more confidence if the DOE and licensees could resolve any uncertainties by reaching an early and amicable resolution as to how and when the DOE will accept responsibility for spent fuel. CECo believes that the implication in this statement is that licensees should amend their contracts with DOE to allow DOE additional time to perform under the contracts or that licensees should refrain taking action against DOE if it defaults under the contracts. CECo notes that NRC has stated that its confidence in safe storage is unaffected by potential contractual disputes between DOE and the spent fuel owners (54 FR 39792), therefore CECo believes that it would be appropriate for NRC to strike the statement and express no opinion regarding possible future disputes between DOE and licensees.

NRC Response

The Commission did not intend the implication that CECo perceives regarding any particular preferred outcome or suggested resolution of

future potential contract disputes between DOE and contract holders. The Commission has stated that its confidence in safe storage is unaffected by any potential contractual dispute between DOE and spent fuel generators and owners as to responsibility for spent fuel storage. The Commission's further statement that it would be helpful if any future potential contract disputes could be resolved amicably merely expressed a concern that the waste management system operates smoothly and efficiently. The statement did not imply any additional impact on or repercussion from the Waste Confidence Decision upon the resolution of future potential contract disputes between DOE and contract holders.

The Commission believes that it has made its position clear that its confidence is not diminished by any potential contractual disputes between DOE and spent fuel owners. However, in order to avoid any further misunderstanding in this regard, the Commission has decided to delete the following statements in its Proposed Waste Confidence Decision Review from its Final Waste Confidence Decision Review:

To resolve any continuing uncertainties, however, it would be helpful if DOE and utilities and other spent fuel generators and owners could reach an early and amicable resolution to the question of how and when DOE will accept responsibility for spent fuel. This would facilitate cooperative action to provide for a smoothly operating system for the ultimate disposition of spent fuel. (54 FR 39792) and

If DOE and the utilities can amicably resolve their respective responsibilities for spent fuel storage in the interest of efficient and effective administration of the overall waste management system, including the Nuclear Waste Fund, NRC would gain added confidence in the institutional arrangements for spent fuel management. (54 FR 39797)

Issue No. 12: NRC Responsibility to Identify Need for Utilities to Provide Interim Storage and to Notify Congress of This Requirement

Comment

Malachy Murphy (State of Nevada) comments that, in light of DOE's Reassessment Report to Congress, the NRC should explicitly state that utilities will need to have interim spent fuel storage available well into the next century. The commenter also states that NRC should explicitly request that Congress take note of this requirement. The commenter believes that such action would be in keeping with NRC's responsibilities to the public and to nuclear utilities.

NRC Response

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The standard contracts between DOE and generators of spent nuclear fuel or persons holding title to spent fuel currently provide that in return for payment to the Nuclear Waste Fund, DOE will dispose of high-level waste and spent fuel beginning no later than January 31, 1998. The Commission believes it would be inappropriate for NRC to take any position on the need for generators and those holding title to such material to provide interim storage for it beyond 1998. This is a matter that will have to be resolved between the parties to the standard contracts. NRC, in its original Waste Confidence Decision and in the Proposed Waste Confidence Decision Review, addressed the issue of storage of spent fuel until a repository becomes available and has expressed its confidence that spent fuel will be safely managed until a repository is available. Furthermore, in its original Waste Confidence Proceeding, NRC amended its reactor licensing rule, 10 CFR part 50 to require each licensed reactor operator to submit, no later than five years before expiration of the operating license, plans for managing spent fuel at the reactor site until the spent fuel is transferred to DOE for disposal.

In the Nuclear Waste Policy Act (NWSA), Congress placed primary responsibility for interim storage of spent fuel on the nuclear utilities until disposal becomes available. Section 132 of the NWSA requires that DOE, NRC, and other authorized Federal officials take such actions as they believe are necessary to encourage and expedite the effective use of available storage, and necessary additional storage, at the site of each civilian nuclear power reactor.

Sections 218(a) and 133 of the NWSA also provide that NRC by rule establish procedures for the licensing of any technology approved by NRC for use at the site of any civilian nuclear power reactor. NRC may by rule approve one or more dry spent fuel storage technologies for use at the sites of civilian power reactors without, to the maximum extent practicable, the need for additional site-specific approvals. Congress is eminently aware of the likely need for at-reactor storage of spent fuel and has taken legislative action with respect to this matter. Therefore, the NRC believes it is not necessary to inform Congress of this need. However, the NRC will continue to exercise its responsibility to assure that spent fuel is managed safely until a repository is available and will notify Congress of any actions it believes are necessary to provide this assurance.

2.4 The Commission's Fourth Finding

The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

Issue No. 13: Consideration of the Cumulative Impacts on Waste Management in the NRC's NEPA Documentation

Comment

DOE commented that the cumulative impacts on waste management of potential reactor operating license extensions should be considered in the NRC's National Environmental Policy Act (NEPA) documentation for license renewals.

NRC Response

DOE has observed that renewal of operating licenses would increase the total amount of spent fuel requiring disposal or interim storage which would be taken into account in DOE program planning and should be considered in NRC's NEPA documentation for license renewals. This is generally consistent with the discussion in the Commission's proposed decision, especially 54 FR 39795 (third column). The greater amount of spent fuel which must be stored as a result of license renewal does not affect the Commission's overall finding of no significant environmental impacts.

Issue No. 14: Need for NRC to Facilitate ISFSI License Extensions to Reflect the Commission's Revised Fourth Finding

Comment

The Virginia Electric & Power Company (VEPCo) states that the current license on the Independent Spent Fuel Storage Installation (ISFSI) for its Surry nuclear power plant expires on July 31, 2006. VEPCo states that the NRC should initiate actions to facilitate ISFSI license extensions to reflect the proposed revised Fourth Finding that spent fuel generated in any reactor can be safely stored for at least 30 years beyond the licensed life for operation of that reactor either onsite or offsite.

NRC Response

The Commission's Waste Confidence finding on the duration of safe storage of spent fuel is generic in nature. Site-specific licensing procedures remain effective. Pursuant to § 72.42, an ISFSI license is issued for a period of 20 years but may be renewed upon application by the licensee. Part 72 in no way precludes licensees from requesting

additional extensions of license terms for ISFSIs. The licensee thus has the option of requesting an ISFSI license renewal to coincide with whatever operating term and post-operation spent fuel storage period is in effect for a particular reactor. For example, a single renewal could extend the Surry ISFSI license expiration date to the year 2026. The NRC does not believe that further revisions to § 72.42 to facilitate these license extensions are warranted at this time.

Issue No. 15: Insufficient Assurance on Duration of Safe Storage and Risk of Fire at a Spent Fuel Pool

Comment

Public Citizen stated that there is not adequate assurance that spent fuel will be stored safely at reactor sites for up to 30 years beyond the expiration of reactor operating licenses. This is even more the case if license extensions of up to 30 years are included. Public Citizen further stated that "the (Waste Confidence) policy statement fails to recognize that spent fuel buildup at reactor sites poses a growing safety hazard. The pools are not well protected from the environment (in many cases they are outside the reactor's containment structure) and have leaked in the past. For example, in December 1986 at the Hatch nuclear power plant in Baxley, Georgia, 141,000 gallons of radioactive water leaked out of the plant's fuel pool. More than 80,000 gallons of the water drained into a swamp and from there into the Altamaha River near the plant." Public Citizen added that "More recently, on August 16, 1988, a seal on a fuel pool pump failed at the Turkey Point nuclear plant near Miami, FL, causing some 3,000 gallons of radioactive water to leak into a nearby storm sewer. The shoes and clothing of approximately 15 workers were contaminated."

Public Citizen also stated that the danger posed by an accident in which enough pool water escaped to uncover the irradiated fuel assemblies would be greater than the operational incidents described above. According to the commenter, if a leak or pump failure caused the water level in a spent fuel pool to drop to a level which exposed the fuel assemblies, the remaining water might be insufficient to provide adequate cooling. The pool water could then heat to the boiling point, producing steam and causing more water to boil away. The danger then is that heat could continue to build up even further until the cladding which encloses the irradiated fuel pellets catches fire. The commenter continued saying that the

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NRC itself, in the time since the original Waste Confidence Decision, has studied the issue of storage in reracked spent fuel pools and concluded in a 1987 report that the consequence of such a cladding fire could be a "significant" radiation release. The NRC report found:

(1) the natural air flow permitted by high-density storage racks is so restricted that potential for self-sustaining cladding fire exists; and
(2) with high-density racks providing "severely restricted air flow" the oxidation (burning) would be "very vigorous" and "failure of both the fuel rods and the fuel rod racks is expected."

Public Citizen states that nowhere in the Proposed Waste Confidence Decision Review does the NRC take into account the findings of this report, which should have been included.

NRC Response

The Commission has addressed the safety of extended post-operational spent fuel storage at considerable length in the discussion of its proposed revised Fourth Finding.

Operational occurrences cited in Public Citizen's comment have been addressed by the NRC staff at the plants listed. The NRC has taken inspection and enforcement actions to reduce the potential for such operational occurrences in the future. We would like to note, however, that the event at the Hatch plant occurred in a transfer canal between spent fuel pools during an operation that would not normally be performed following expiration of a reactor operating license. In the case of the event at Turkey Point, the water that flowed outside the building went back into the intake of the plant cooling canal. The canal is a large, closed loop onsite flow path. There was no radiation release offsite, and the safety significance of the event appears to have been very low.

Regarding the risk of fire at spent fuel pools, the NRC staff has spent several years studying in detail catastrophic loss of reactor spent fuel pool water possibly resulting in a fuel fire in a dry pool. The 1987 report, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82" (NUREG/CR-4982), referred to in Public Citizen's comment represents an early part of the NRC's study. Its findings were based on generic data on seismic hazards and response of spent fuel pools, which resulted in calculated risk numbers with wide ranges of uncertainty. (See p. xiii.) Subsequent study of the consequences and risks due to a loss of coolant water from spent fuel pools was conducted by the NRC, and the results were published in NUREG/CR-5176, "Seismic Failure and Cask Drop Analysis of the Spent

Fuel Pools at Two Representative Nuclear Power Plants," January 1989, and NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, >Beyond Design Basis Accidents in Spent Fuel Pools," April 1989. These reports were cited in the Commission's Proposed Waste Confidence Decision Review (54 FR 39767-39797, at p.39795, September 28, 1989). Also issued in 1989, as part of the NRC staff's study, was "Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Pools" (NUREG/CR-5281).

The analyses reported in these studies indicate that the dominant accident sequence which contributes to risk in a spent fuel pool is gross structural failure of the pool due to seismic events. Risks due to other accident scenarios (such as pneumatic seal failures, inadvertent drainage, loss of cooling or make-up water, and structural failures due to missiles, aircraft crashes and heavy load drops) are at least an order of magnitude smaller. For this study, older nuclear power plants were selected, since the older plants are more vulnerable to seismic-induced failures.

It should be noted that for a zircaloy cladding fire in a spent fuel storage pool, an earthquake or other event causing a major loss of cooling water would have to occur within two years after operation of a PWR or six months after operation of a BWR. (See NUREG-1353, p. 4-11.) Thus, during the decades of post-operational storage, even a major loss of cooling water would not be sufficient to cause a cladding fire. During the time the pool would be most vulnerable to a fire, the most-recently discharged fuel assemblies would have to be adjacent to other recently discharged assemblies for a fire to propagate to the older fuel. Considering that a third of the reactor core is typically unloaded as spent fuel each year, the probability of a fire involving even the equivalent of a reactor core--a small portion of a pool's capacity--is quite remote.

It should also be noted that even if the timing of a spent fuel pool failure were conducive to fire, a fire could occur only with a relatively sudden and substantial loss of coolant--a loss great enough to uncover all or most of the fuel, damaging enough to admit enough air from outside the pool to keep a large fire going, and sudden enough to deny the operators time to restore the pool to a safe condition. Such a severe loss of cooling water is likely to result only from an earthquake well beyond the conservatively estimated earthquake for which reactors are designed. Earthquakes of that magnitude are extremely rare.

The plant-specific studies following the 1987 generic study found that, because of the large safety margins inherent in the design and construction of their spent fuel pools, even the more vulnerable older reactors could safely withstand earthquakes several times more severe than their design basis earthquake. Factoring in the annual probability of such beyond-design-basis earthquakes, the plant-specific and generic followup studies calculated that the average annual probability of a major spent fuel pool failure at an operating reactor was ten to thirty times lower than the average probabilities in the 1987 study. (See NUREG/CR-5176, p. xiii, and NUREG-1353, pp. ES-2-3.) For either BWR or PWR designs, this probability was calculated at two chances in a million per year of reactor operation. (See NUREG-1353, pp. ES-3-4.)

After evaluating several regulatory options for reducing the risk of spent fuel pool fires, the NRC regulatory analysis concluded that "[t]he risk[s] due to beyond design basis accidents in spent fuel pools, while not negligible, are sufficiently low that the added costs involved with further risk reductions are not warranted." (See NUREG-1353, pp. ES-6-8.)

Issue No. 16: Need for NRC Requirement for Dry Cask Storage Instead of Storage in Spent Fuel Pools

Comment

Public Citizen states that the use of dry cask storage for spent fuel would help address some of the concerns described above, but that NRC has no plans to require dry cask storage instead of storage in spent fuel pools. The commenter notes that NRC has explicitly stated in its Proposed Decision Review that storage in a reactor's "spent fuel storage basin" is considered safe, and (the commenter) apparently disagrees with this conclusion.

NRC Response

The record of operational experience with reactor spent fuel storage pools, as discussed in the Commission's Proposed Decision Review and in response to the preceding comments, strongly supports the conclusion that reactor spent fuel pool storage, which has continued for decades, is safe. Accordingly, the NRC has reached the conclusion that past experience and available information amply support the safety of spent fuel storage, both in pools and dry storage casks, for at least 30 years past the expiration of reactor operating licenses (including the term of a revised license).

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Issue No. 17: Suggestion to Revise Proposed Fourth Finding to Reflect Reasonable Assurance That Spent Fuel Can Be Safely Stored in Dry Casks at Reactor Sites for Up to One Hundred Years

Comment

Malachy Murphy (State of Nevada) commented that NRC's Proposed Revised Fourth Finding did not go far enough with respect to the duration of safe storage in dry storage casks. The commenter suggested that both the proposed finding and the Proposed Amendment to 10 CFR 51.23 be amended to reflect reasonable assurance that spent fuel can be stored safely and without significant environmental risk in dry casks at reactor sites for up to one hundred (100) years.

NRC Response

The Commission does not dispute a conclusion that dry spent fuel storage is safe and environmentally acceptable for a period of 100 years. Evidence supports safe storage for this period. A European study published in 1988 states, "In conclusion, present-day technology allows wet or dry storage over very long periods, and up to 100 years without undue danger to workers and population." (See Fettel, W., Kaspar, G., and Gunther, H., "Long-Term Storage of Spent Fuel from Light-Water Reactors" (EUR 11866 EN), Executive Summary, p.v, 1988.)

Although spent fuel can probably be safely stored without significant environmental impact for longer periods, the Commission does not find it necessary to make a specific conclusion regarding dry cask storage in this proceeding, as suggested by the commenter, in part because the Commission's Proposed Fourth Finding states that the period of safe storage is "at least" 30 years after expiration of a reactor's operating license. The Commission supports timely disposal of spent fuel and high-level waste in a geologic repository, and by this Decision does not intend to support storage of spent fuel for an indefinitely long period.

Issue No. 18: Maintenance of Institutional Controls for One Hundred Years

Comment

Marvin Lewis commented that the Commission's Proposed Revised Decision and Amendment to 10 CFR part 51 both require that at-reactor storage be available and safe for at least 100 years, which is an excessive amount of time to depend on institutional memory. The commenter states that to look into the future and have confidence

that our institutions will survive in a form which will provide that safe onsite storage is available for at least 100 years into the future lacks any merit. The commenter asked that the Commission arrive at the opposite conclusion, namely that "Due to the Department of Energy's lack of quality control of data and analysis, inability to qualify acceptable sites, accusation against subcontractors when data contradicts DOE's preconceived assumptions, and general adherence to the political solution instead of scientific veracity, the NRC cannot find that temporary storage at reactors will ensure that geological storage for spent fuel will be available and safe when needed."

NRC Response

The Commission believes there is an adequate basis from the record of Federal regulations, historical experience and current practice to support the Commission's finding regarding institutional controls over spent fuel storage activities.

The Environmental Protection Agency's standards for high-level waste disposal provide that "active institutional controls over disposal sites should be maintained for as long a period of time as is practicable after disposal; however, performance assessments that assess isolation of the wastes from the accessible environment shall not consider any contributions from active institutional controls for more than 100 years after disposal" (40 CFR 191.14(a)). The finding that repository licensing performance assessments can take credit for active institutional controls for 100 years is not one of the issues involved in the judicial action which vacated the EPA standard, and it is not expected that this section will be disturbed when the standard is reissued. It should also be noted that this language does not suggest that active institutional controls are unlikely for a period greater than 100 years. In the summary of the Final Rule (50 FR 38066; September 19, 1985), EPA noted that many commenters on the Proposed Rule felt that "a few hundred years" which was the proposed period for reliance on active institutional controls was too long. EPA agreed to limit the period to 100 years, noting that "this was the time period [EPA] considered in criteria for radioactive waste disposal that were proposed for public comment in 1978 (43 FR 53262), a period that was generally supported by the commenters on that proposal" (50 FR 38066, at p. 38080).

NRC would add that there are abundant examples of institutions in human society which have maintained a continuity in institutional controls far

exceeding 100 years. The government of the United States, which is relatively young, is over 200 years old. The governments of some European countries have been in existence for time periods between 700 to 1000 years. While invading armies and civil wars have been disruptive, archival information of interest to the safety of the population can be expected to be preserved. In the United States today, real estate contracts are commonly executed to cover a period of 100 years, or a significant fraction thereof. One hundred-year land-lease agreements are common. Major civil construction projects such as harbors, bridges, flood control systems, and dams are often planned and executed--and investments made in them--with the view of recovering the benefits over a period of 100 years or more.

2.5 The Commission's Fifth Finding

The Commission finds reasonable assurance that safe independent onsite or offsite spent fuel storage will be made available if such storage capacity is needed.

Issue No. 19: Impact of Extension of Time for Repository Availability on the Increased Generation of Low-Level Radioactive Waste

Comment

Commonwealth Edison (CECo) commented that the Proposed Waste Confidence Review does not address low-level waste concerns resulting from delayed acceptance of spent fuel by the repository under DOE's extended schedule for repository availability. CECo commented that if they store spent fuel in pools and implement rod consolidation to conserve space during the extension, additional low-level waste may be generated. CECo believes that NRC should determine if this additional low-level waste should go to a Federal Repository or to a sited compact for disposal.

NRC Response

The disposition of high-level and low-level radioactive wastes has already been determined by Congress in the Nuclear Waste Policy Act of 1982 (NWPAA) and in the Low-Level Radioactive Waste Policy Act (LLWPA). Congressional designation of the method of disposal of each type of waste was not dependent on the DOE's schedule for development of the repository; rather, Congress designated the method of disposal according to characteristics of the waste which are associated with its hazard (i.e., radioactive source strength, radioactive species of the emanating radiation, and half-life). It is not within the NRC's regulatory

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jurisdiction to change the directives provided by Congress in the NWPAA and the LLWPA.

3.0 Consideration of Other Events Relevant to the Commission's Decision

Issue No. 20: Petition by the State of Vermont to Intervene in the Consideration of the Extension of the Operating License for Vermont Yankee

In the Commission's Proposed Waste Confidence Decision Review, it was stated that the basis for the 2007-2009 timeframe in the Court remand leading to the Waste Confidence Proceeding had changed since the original Decision. This discussion was based on the fact that it appeared likely that these dates no longer represented the expected expiration dates for the operating licenses of the Vermont Yankee and Prairie Island nuclear plants. The NRC staff has been granting extensions of the dates of expiration of nuclear plant operating licenses to reflect a 40-year period from the date of issuance of the operating license rather than from the date of the construction permit. The dates of expiration of the Prairie Island Units 1 and 2 had already been extended from the year 2006 to the years 2013 and 2014. The NRC staff anticipated that on the basis of the date of issuance of its operating license, Vermont Yankee would be eligible for an extension of its operating license to March 2012.

In the time since the drafting of the Proposed Decision Review, several pertinent events have occurred. NRC published a notice of consideration of amendment to the Vermont Yankee Operating License, a proposed "no significant hazards" consideration determination, and opportunity for a hearing (54 FR 31120; July 26, 1989). On August 22, 1989, the State of Vermont filed a petition for leave to intervene. On October 30, 1989, Vermont filed a supplement to its petition to intervene proposing nine contentions for litigation on Vermont Yankee Nuclear Power Corporation's application to extend its operating license. On November 15, 1989, the NRC's Atomic Safety and Licensing Board (ASLB) heard oral argument by counsel for the licensee, the NRC staff, and the State of Vermont concerning the State's petition for leave to intervene and supplemental petition for leave to intervene. The ASLB granted the State of Vermont's petition for leave to intervene, admitted one contention (which did not concern waste disposal) as an issue in controversy for litigation, and granted the request for hearing. The ASLB's ruling was issued in a Prehearing Conference

Memorandum and Order dated January 26, 1990 (Docket No.50-271-OLA-4).

It is now apparent that the extension of Vermont Yankee's operating license expiration date will be dependent on the outcome of this contested hearing. There is the possibility that a shorter extension or that no extension will be granted. In view of the uncertain outcome, the Commission will delete all discussion of a possible revised date for the Vermont Yankee operating license expiration and the revised date for expiration of the Prairie Island operating license. This deletion, however, does not affect the Commission's Proposed Revised Second Finding in its Waste Confidence Decision Review. Assuming that no extension or a lesser extension is granted and Vermont Yankee's operating license expires in 2007, the basis for the Commission's finding that a repository will be available within the first quarter of the twenty-first century and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor, would be unaffected.

Issue No. 21: Potential Need for Additional Financial Security for the Nuclear Waste Fund

The NRC staff has been informed by DOE's Office of Civilian Radioactive Waste Management that a pending final report from DOE's Inspector General has indicated a potential problem for certain nuclear utility licensees to pay the one-time fee into the Nuclear Waste Fund (NWF) for spent fuel generated prior to April 1983. This issue arises because several utilities elected to defer payment into the fund and, instead, themselves hold the money that was collected from ratepayers for the one-time fee. DOE's Inspector General believes that some of those utilities may not be able to make their payments when due.

The NRC staff met with DOE's Office of Civilian Radioactive Waste Management (OCRWM) on December 13, 1989 to discuss this issue and determine the potential impact on both NRC's Decommissioning Rulemaking and on the Waste Confidence Decision, and, more generally, on protection of public health and safety. In addition, NRC discussed at that meeting and in follow-up telephone conversations potential actions that DOE might take. These actions could include modifying DOE's spent fuel contracts with electric utilities, seeking legislative amendments, and working with the National Association of Regulatory Utility Commissioners to increase assurance of one-time contributions into the NWF.

The NRC understands from OCRWM staff that, if a nuclear utility licensee were to default on its one-time contribution to the NWF, DOE is not precluded from accepting for disposal all spent fuel from that utility. Thus, the NRC does not view this issue as affecting its confidence that the spent fuel will be disposed of. Rather, the issue is one of equity--that is, will a utility and its customers and investors or U.S. taxpayers and/or other utilities ultimately pay for disposal of spent fuel generated prior to April 1983.

Background

In November 1976, the Natural Resources Defense Council (NRDC) petitioned NRC for a rulemaking to determine whether radioactive wastes generated in nuclear power reactors can be subsequently disposed of without undue risk to the public health and safety. The NRDC also requested that NRC not grant pending or future requests for operating licenses until the petitioned finding of safety was made.

On June 27, 1977, NRC denied the NRDC petition. The Commission said that in issuing operating licenses, NRC must have assurance that wastes can be safely handled and stored as they are generated. It also said that it is not necessary for permanent disposal to be available if NRC could be confident that permanent disposal could be accomplished when necessary. NRC added that Congress was aware of the relationship between nuclear reactor operations and the radioactive waste disposal problem, and that NRC would not refrain from issuing reactor operating licenses until the disposal problem was resolved. The Commission also stated that it "...would not continue to license reactors if it did not have reasonable confidence that the wastes can and will in due course be disposed of safely."

Also in November 1976, two utility companies requested amendments to their operating licenses to permit expansion in the capacity of their spent nuclear fuel storage pools: Vermont Yankee Nuclear Power Corporation for the Vermont Yankee plant; and Northern States Power Company for its Prairie Island facility. In both cases, the utilities planned to increase storage capacity through closer spacing of spent fuel assemblies in existing spent fuel pools. The New England Coalition on Nuclear Power and the Minnesota Pollution Control Agency intervened. The NRC staff evaluated the requests and found that the modifications would not endanger public health and safety. The staff did not consider any potential

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environmental effects of storage of spent fuel at the reactors beyond the dates of expiration of their operating licenses. NRC's Atomic Safety and Licensing Board Panel (ASLBP) adopted the staff's safety and environmental findings and approved the license amendments for the two plants. It too did not consider the effects of at-reactor storage beyond the expiration of the facility operating license.

The Board's decision was appealed to the Atomic Safety and Licensing Appeal Board (ASLAB). The ASLAB affirmed the Licensing Board's decision, citing the Commission's "...reasonable confidence that wastes can and will in due course be disposed of safely..." in the Commission's denial of the NRDC petition. The decision of the ASLAB was appealed to the U.S. Circuit Court of Appeals. On May 23, 1979 the Court declined to stay or vacate the license amendments, but remanded to NRC the question of "...whether there is reasonable assurance that an offsite storage solution will be available by the years 2007-2009, the expiration of the plants' operating licenses, and if not, whether there is reasonable assurance that the fuel can be safely stored at the reactor sites beyond those dates." In its decision to remand to NRC, for consideration in either a generic rulemaking or an adjudicatory proceeding, the Court observed that the issues of storage and disposal of nuclear waste were being considered by the Commission in an ongoing generic proceeding known as the "S-3 Proceeding" on the environmental impacts of uranium fuel cycle activities to support the operation of a light water reactor, and that it was appropriate to remand in light of a pending decision on that proceeding and analysis.

On October 18, 1979, NRC announced that it was initiating a rulemaking proceeding in response to the Appeals Court remand and as a continuation of the NRDC proceeding. Specifically, the purpose of the proceeding was for the Commission "...to reassess its degree of confidence that radioactive wastes produced by nuclear facilities will be safely disposed of, to determine when any such disposal will be available, and whether such wastes can be safely stored until they are disposed of."

The Commission recognized that the scope of this proceeding would be broader than the Court's instruction, which required the Commission to address only storage-related questions. The Commission believed, however, that the primary public concern was the safety of waste disposal rather than the availability of an off-site solution to the

storage problem. The Commission also committed itself to reassess its basis for confidence that methods of safe permanent disposal for high-level waste would be available when needed. Thus, the Commission chose as a matter of policy not to confine itself exclusively to the narrower issues in the court remand.

In the Notice of Proposed Rulemaking, the Commission also stated that if the proceeding led to a finding that safe off-site storage or disposal would be available before expiration of facility operating licenses, NRC would promulgate a rule providing that the impact of onsite storage of spent fuel after expiration of facility operating licenses need not be considered in individual licensing proceedings.

The Waste Confidence Decision was issued on August 31, 1984 (49 FR 34658). In the Decision, the Commission made five findings. It found reasonable assurance that:

(1) Safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

(2) One or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-2009, and sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

(3) High-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level radioactive waste and spent fuel.

(4) If necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of that reactor's operating license at that reactor's spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

(5) Safe independent onsite or offsite spent fuel storage will be made available if such storage capacity is needed.

On the day the Decision was issued, the Commission also promulgated two rulemaking amendments: (1) an amendment to 10 CFR part 50, which required that no later than five years before expiration of reactor operating licenses, the licensee must provide NRC with a written plan for management of spent fuel onsite, until title for the spent fuel is transferred to the DOE; and (2) an

amendment to 10 CFR part 51 which provided that environmental consequences of spent fuel storage after expiration of facility licenses need not be addressed in connection with issuance of or amendment to a reactor operating license.

In issuing the part 51 amendment, the Commission stated that although it had reasonable assurance that one or more repositories would be available by 2007-2009, it was possible that some spent fuel would have to be stored beyond those dates. The part 51 amendment was based on the Commission's finding in the Waste Confidence Proceeding that it had reasonable assurance that no significant environmental impacts will result from storage of spent fuel for at least 30 years beyond expiration of reactor operating licenses.

Enactment of the NWPA contributed significantly to the basis for the Commission's 1984 Decision and companion rulemakings. The Act established a funding source and process with milestones and schedules for, among other things, the development of a monitored retrievable storage (MRS) facility and two repositories, one by early 1998 and a second, if authorized by Congress, at a later date, initially planned by DOE for 2006. For each repository, the Act required DOE to conduct *in-situ* investigations of three sites and recommend one from among them to the President and Congress for repository development. The NWPA also required DOE to recommend, from among alternative sites and designs, a site and design for an MRS for spent fuel and high-level waste management before disposal. The Commission's licensing and regulatory authority over both storage and disposal facilities was preserved by the Act.

In the four years after enactment of the NWPA, DOE met a number of the Act's early program requirements, but also encountered significant difficulties. It published a final Mission Plan for the overall NWPA program, and followed with a Project Decision Schedule for DOE and other Federal agency actions. It promulgated, with Commission concurrence, a set of guidelines for repository siting and development. It published draft and final environmental assessments for nine candidate repository sites, and recommended three for characterization. It completed and submitted to Congress an environmental assessment, a program plan, and a proposal with a site and design for an MRS. All these actions followed extensive interactions with interested Federal agencies, State, Indian tribal, and local governments, and other

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organizations. In the course of these activities, however, DOE also slipped its schedule for operation of the first repository by five years, indefinitely postponed efforts toward a second repository, and had to halt further MRS siting and development activities pending Congressional authorization.

In December, 1987, Congress enacted the Nuclear Waste Policy Amendments Act (NWPAA). The NWPAA redirected the high-level waste program by suspending site characterization activities for the first repository at sites other than the Yucca Mountain site, and by suspending all site-specific activities with respect to a second repository. The Amendments Act also authorized and set schedule and capacity limits on the MRS. The purpose of these limitations, according to sponsors of the legislation, was to assure that an MRS would not become a substitute for a geologic repository.

Consistent with its commitment to revisit its Waste Confidence conclusions at least every five years, the Commission has undertaken the current review to assess the effect of these and other developments since 1984 on the basis for each of its five findings. The Commission issued its proposed Waste Confidence Decision Review and proposed revised findings for public comment on September 28, 1989. The comment period expired December 27, 1989. A total of eleven comments were received.

In this document, the Commission supplements the basis for its earlier findings and the environmental analysis of the 1984 Decision. The Commission is amending its second finding, concerning the timing of initial availability and sufficient capacity of a repository, and its fourth finding, concerning the duration of safe spent fuel storage. These revisions are based on the following considerations:

(1) the five-year slippage, from 1998 to 2003, in the DOE schedule for repository availability prior to issuance of its November 1989 "Report to Congress on Reassessment of the Civilian Radioactive Waste Management Program" and its new target date of 2010 for repository availability announced in that report;

(2) the additional slip of four and one-half years since the January 1987 Draft Mission Plan Amendment in the DOE schedule for the excavation of the exploratory shaft;

(3) the need to continue accounting for the possibility that the Yucca Mountain site might be found unsuitable and that DOE would have to initiate efforts to identify and characterize another site for the first repository;

(4) the statutory suspension of site-specific activities for the second repository;

(5) DOE's estimate that site screening for a second repository should start about 25 years before the start of waste acceptance; and

(6) increased confidence in the safety of extended spent fuel storage, either at the reactor or at independent spent fuel storage installations.

The Commission is also issuing an amendment to 10 CFR 51.23(a) to conform with the revisions to Findings 2 and 4 elsewhere in this issue of the *Federal Register*.

Organization and Table of Contents

In conducting this review, the Commission has addressed, for each of its 1984 Findings, two categories of issues. The first category consists of the issues the Commission considered in making each Finding at the time of the initial Waste Confidence Decision. For these issues, the Commission is interested in whether its conclusions, or the Finding these conclusions support, should be changed to address new or foreseeable developments that have arisen since the first Waste Confidence Decision. The second category of issues consists of those the Commission believes should be added to the 1984 issues in light of subsequent developments. (To enable the reader to follow more easily, the lengthy discussions of Findings 1 and 2 have been organized to address each original and new issue under subheadings.)

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Reaffirmed Finding 1: The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

I.A. Issues Considered in Commission's 1984 Decision on Finding 1

I.A.1. The identification of acceptable sites

Under the Nuclear Waste Policy Act of 1982 (NWPAA), the Department of Energy (DOE) had responsibility for identifying candidate sites for a geologic repository and for repository development. The first requirement leading to recommendation of candidate

sites was formal notification of States with one or more potentially acceptable sites for a repository within 90 days of enactment of the NWPAA. In February 1983, the DOE identified nine potentially acceptable sites for the first repository. Four of the sites were in bedded-salt formations, three were in salt domes, one in volcanic tuff, and one in basalt.

The NWPAA required that each site nomination be accompanied by an environmental assessment (EA). In December 1984, DOE published Draft EAs (DEAs) for each of the nine sites identified as potentially acceptable and proposed the following sites for nomination: the reference repository location at Hanford, WA; Yucca Mountain, NV; Deaf Smith County, TX; Davis Canyon, UT; and Richton Dome, MS. In May 1986, DOE released Final EAs (FEAs) for the five sites nominated. At that time, DOE recommended that the Yucca Mountain, Hanford, and Deaf Smith County sites undergo site characterization. The President approved the recommendation.

The NRC staff provided extensive comments on both the DEAs and the FEAs. NRC concerns on the FEAs related primarily to DOE's failure to recognize uncertainty inherent in the existing limited data bases for the recommended sites, and the tendency of DOE to present overly favorable or optimistic conclusions. The primary intent of the comments was to assist DOE in preparing high-quality Site Characterization Plans (SCPs) for each site, as required under the NWPAA, before excavation of exploratory shafts. NRC concerns can only be addressed adequately through the site characterization process, because one of the purposes of this process is to develop the data to evaluate the significance of concerns relative to site suitability.

NRC did not identify any fundamental technical flaw or disqualifying factor which it believed would render any of the sites unsuitable for characterization. Further, NRC did not take a position on the ranking of the sites in order of preference, because this could be viewed as a prejudgment of licensing issues. NRC was not aware of any reason that would indicate that any of the candidate sites was unlicenseable. Nor has NRC made any such finding to date with respect to any site identified as potentially acceptable.

In March 1987, Congress began drafting legislation to amend the repository program. NRC provided comments on a number of these draft amendments. In December 1987, the NWPAA was enacted. In a major departure from the initial intent of the

NWPAA, the new law required that DOE suspend site characterization activities at sites other than the Yucca Mountain site. This decision was not based on a technical evaluation of the three recommended sites or a conclusion that the Hanford and Deaf Smith sites were not technically acceptable. According to sponsors of the legislation, the principal purpose of the requirement to suspend characterization at these sites was to reduce costs. In effect, the NWPAA directed DOE to characterize candidate sites sequentially, if necessary, rather than simultaneously. If DOE determines at any time that the Yucca Mountain site is unsuitable, DOE is to terminate all site characterization activities and report to Congress its recommendations for further actions.

The NRC staff has identified numerous issues regarding the Yucca Mountain site that may have a bearing on the licenseability of that site. These issues will have to be resolved during site characterization. An example of a site issue that may bear on the question of suitability is tectonic activity, the folding or faulting of the earth's crust. In the 1984 Waste Confidence Decision, NRC noted that "...the potential sites being investigated by DOE are in regions of relative tectonic stability." The authority for this statement came from the Position Statement of the US Geological Survey (USGS). NRC has raised concerns regarding tectonic activity at the Yucca Mountain site in the comments on the draft and final EAs, in the draft and final Point Papers on the Consultation Draft Site Characterization Plan, and in the Site Characterization Analysis for the Yucca Mountain site. If it appears during site characterization that the Yucca Mountain site will be unable to meet NRC requirements regarding isolation of waste, DOE will have to suspend characterization at that site and report to Congress.

DOE's program of site screening in different geologic media was consistent with section 112(a) of the NWPAA, which required that DOE recommend sites in different geologic media to the extent practicable. This strategy was to ensure that if any one site were found unsuitable for reasons that would render other sites in the same geologic medium unacceptable, alternate sites in different host rock types would be available. NRC referred to this policy in its 1984 Waste Confidence Decision, when it said, in support of its argument on technical feasibility, that "...DOE's program is providing information on site characteristics at a sufficiently large number and variety of sites and geologic

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media to support the expectation that one or more technically acceptable sites will be identified."

NRC recognizes that simultaneous site characterization is not necessary to identify a repository site that would meet NRC's technical criteria for isolating wastes. Sequential site characterization does not necessarily preclude or hinder identification of an acceptable site for a repository. NRC did express concern to Congress, on several occasions during deliberations over the proposed legislation, that sequential site characterization could delay considerably the schedule for opening a repository if the site undergoing characterization were found to be unlicenseable. NRC also indicated that this potential for delay would have to be considered by NRC in reevaluating the findings in its Waste Confidence Decision. The impact of this redirection of the high-level waste program on the Commission's Waste Confidence findings is not on the ability to identify technically acceptable sites, but on the timing of availability of technically acceptable sites. Because characterization of multiple sites appears to be more directly related to the timing of repository availability than to the feasibility of geologic disposal, consideration of the above statement in light of the NWPA program redirection will be discussed under Finding 2.

Another question bearing on whether technically acceptable sites can be found is whether compliance with Environmental Protection Agency (EPA) environmental standards for disposal of spent fuel and high-level waste can be demonstrated. These standards, originally promulgated in final form in September 1985, were vacated in July, 1987, by the U.S. Court of Appeals, and remanded to EPA for further consideration (see *NRDC v. EPA*, 824 F. 2d 1258). As originally promulgated, the standards set limits on releases of radioactive materials from the site into the accessible environment over a 10,000-year period following disposal. They also required that there be less than one chance in ten that the release limits will be exceeded in 10,000 years, and less than one chance in 1,000 that releases will exceed ten times the limits over 10,000 years.

In past comments on draft and proposed EPA standards, and in related NRC rulemaking efforts, NRC has expressed concern that probabilistic analyses should not be exclusively relied on to demonstrate compliance with EPA release limits. NRC's comments said in part that "[t]he numerical probabilities in [the

standards] would require a degree of precision which is unlikely to be achievable in evaluating a real waste disposal system." The comments went on to explain that "...identification of the relevant processes and events affecting a particular site will require considerable judgment and will not be amenable to accurate quantification, by statistical analysis, of their probability of occurrence." NRC believed then, and continues to believe, that it must make qualitative judgments about the data and methodologies on which the numerical probabilities were based.

In response to NRC concerns, EPA incorporated language into its 1985 standards that appeared to allow flexibility to combine qualitative judgments with numerical probability estimates in a way that might have made implementation of the EPA standards practicable. The text of those standards recognized that "proof of the future performance of a disposal system is not to be had in the ordinary sense of the word" with the substantial uncertainties and very long performance period involved. The 1985 standards emphasized that a "reasonable expectation"--rather than absolute proof--is to be the test of compliance. "What is required," the text of the standards said, "is a reasonable expectation, on the basis of the record... that compliance... will be achieved." In an additional attempt to provide flexibility for implementation of the standards, EPA also provided that numerical analyses of releases from a repository were to be incorporated into an overall probability distribution only "to the extent practicable." This phrase appeared to allow some discretion for NRC to incorporate qualitative considerations into its license decision-making, rather than having to rely solely on numerical projections of repository performance. On the strength of these and other EPA assurances, the Commission did not object when the final standards were published in 1985.

The Commission also notes that the EPA standards, as promulgated in 1985, contained a provision for development of alternative standards by EPA. The *Federal Register* text (50 FR 38074, September 19, 1985) describing this alternative standards provision stated:

There are several areas of uncertainty the Agency [EPA] is aware of that might cause suggested modifications of the standards in the future. One of these concerns is implementation of the containment requirements for mined geologic repositories. This will require collection of a great deal of data during site characterization, resolution of the inevitable uncertainties in such information, and adaptation of this information into probabilistic risk

assessments. Although the Agency is currently confident that this will be successfully accomplished, such projections over thousands of years to determine compliance with an environmental regulation are unprecedented. If--after substantial experience with these analyses is acquired--disposal systems that clearly provide good isolation cannot reasonably be shown to comply with the containment requirements, the Agency would consider whether modifications to [the standards] were appropriate.

This statement suggests to the Commission that EPA would be willing to consider modifications to the standard's containment requirements in the event that their probabilistic formulation is found to hamper or preclude an adequate evaluation of a proposed repository's capability to isolate radioactive waste.

Pursuant to the remand by the Federal court in 1987, EPA is currently revising its standards for disposal of spent fuel and high-level waste. The court's decision directed that the remand focus on the ground water and individual protection requirements of the standards. Although the EPA standards are still undergoing development at this time, the Commission does not currently see a sufficient basis to withdraw its confidence in the feasibility of evaluating compliance with such standards. NRC staff will closely monitor the development of the repromulgated standards.

In sum, considering both past and current programs for characterizing sites, the Commission concludes that technically acceptable sites for a repository can be found. The Commission is confident that, given adequate time and resources, such sites can be identified, evaluated, and accepted or rejected on their merits, even if no more than one site is undergoing site characterization. This judgment does not rest on the acceptability of the Yucca Mountain site or any one future candidate site.

I.A.2. The development of effective waste packages.

I.A.2.a. Considerations in developing waste packages.

The NWPA required NRC to promulgate technical requirements and criteria to be applied in licensing a repository for high-level radioactive waste. Under Section 121 of the Act, these technical criteria must provide for use of a system of multiple barriers in the design of the repository and such restrictions on the retrievability of waste as NRC deems appropriate. The system of multiple barriers includes both engineered and natural barriers.

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The waste package is the first engineered barrier in the system of multiple barriers to radionuclide escape. The waste package is defined as the "waste form and any containers, shielding, packing and other absorbent materials immediately surrounding an individual waste container." Before sinking an exploratory shaft for site characterization, DOE is required to prepare an SCP including a description of the waste form or packaging proposed for use at the repository, and an explanation of the relationship between such waste form or packaging and the geologic medium of the site.

The multiple barrier approach to radioactive waste isolation in a geologic repository is implemented in NRC requirements by a number of performance objectives and by detailed siting and design criteria. The NRC performance objective for the waste package requires substantially complete containment for a period of not less than 300 years nor more than 1000 years after permanent closure of the repository. The technical design criteria for the waste package require that interaction of the waste package with the environment not compromise performance of the package, the underground facility, or the geologic setting. Therefore, the waste package design must take into account the complex site-specific interactions between host rock, waste package, and ground water that will affect waste package and overall repository performance.

Under the NWPA, DOE was required to suspend site characterization activities at sites other than the Yucca Mountain, NV site. Consequently, DOE has narrowed the range of waste package designs to a design tailored for unsaturated tuff at the Yucca Mountain site. This aspect of the high-level waste program redirection may facilitate and expedite the waste package design process insofar as it enables DOE to concentrate its efforts on developing a single design for a single site instead of three designs for sites in bedded salt, basalt, and unsaturated tuff.

Currently, DOE is evaluating uncertainties in waste package design related to waste form, container type, and environment. The current conceptual design for the waste package is based on several assumptions. The waste form is presumed to be ten-year-old spent fuel or high-level waste in the form of borosilicate glass in stainless-steel canisters. (In addition to spent fuel and high-level waste, the waste form may include greater-than-Class C (GTCC) low-level waste. This waste is

not routinely acceptable for near-surface disposal under NRC regulations for disposal of low-level wastes, but is acceptable for disposal in a repository licensed for disposal of spent fuel and high-level wastes. This waste might include such materials as sealed sources and activated metals from the decommissioning of reactors and production facilities.)

Six materials are being considered for fabrication of containers, including austenitic steel (316L), nickel-based alloys (Alloy 825), pure copper (CDA 102), copper-based alloys (aluminum-bronze, CDA-613, and 70-30 Cu-Ni, CDA-715), and a container with a metal outer shell and ceramic liner. The reference container for the spent fuel and high-level waste is a 1.0-cm thick cylinder to be made of American Iron and Steel Institute (AISI) 304L stainless steel. This will be DOE's benchmark material, against which other materials are to be compared. DOE currently intends for spent fuel containers to be filled with an inert gas, such as argon, before being welded closed. In addition to these six materials, DOE also plans to assess the merits of alternative waste package materials and designs.

The reference repository location is in the unsaturated tuff of the Topopah Spring Formation underlying Yucca Mountain. According to DOE, little free-flowing water is thought to be present there to contribute to corrosion of the waste containers, although the degree of saturation in this tuff is estimated to be 65 (plus or minus) 19 percent of the available void space in the rock. DOE has acknowledged, however, that the greatest uncertainties in assessing waste package performance at Yucca Mountain stem from difficulty in characterizing and modeling the coupled geochemical-hydrologic processes that represent the interactions between the host rock, waste package, and ground water. The final waste package design will depend on the results of site characterization and laboratory testing to reduce uncertainty in predicting these interactions in the reference repository horizon. The final design will also be shaped by research in understanding the degradation of candidate container materials, and the characteristics of the likely reference waste forms.

Regarding the state of technology for developing long-lived waste package containers, the Swedish Nuclear Fuel and Waste Management Company (SKB), the organization responsible for radioactive waste disposal in Sweden, has described a container for spent fuel rods that consists of a 0.1-m thick copper canister surrounded by a

bentonite overpack. The design calls for pouring copper powder into the void spaces in the canisters, compacting the powder using hot-isostatic pressing with an inert gas, and sealing the canisters. SKB estimates that the copper canister waste package has a million-year lifetime. (See also I.B.3. below.)

As noted in NRC's Final Point Papers on the Consultation Draft Site Characterization Plan, the Commission does not expect absolute proof that 100 percent of the waste packages will have 100 percent containment for 300 to 1000 years. Since that time, the NRC staff has completed its review of the December 1988 Site Characterization Plan for Yucca Mountain. Although the Commission continues to have concerns about DOE's waste package program, nothing has occurred to diminish the Commission's confidence that as long as DOE establishes conservative objectives to guide a testing and design program, in tuff or in other geologic media if necessary, it is technically feasible to develop a waste package that meets the performance objective for substantially complete containment.

I.A.2.b. Effect of reprocessing on waste form and waste package.

The Draft 1988 Mission Plan Amendment estimates that about 77,800 metric tons of heavy metal (MTHM) of spent nuclear fuel will be available for disposal by the year 2020. (This estimate is based on a "no new orders" assumption for commercial nuclear reactors and a 40-year reactor lifetime.) Also, approximately 9400 MTHM of reprocessed defense waste and a small amount of commercial reprocessed waste from the West Valley Demonstration Project is estimated to be available for disposal by 2020. The decision to locate the defense high-level waste in the repository for wastes from commercial power reactors resulted from the requirement in Section 8 of the NWPA that the President evaluate the possibility of developing a defense-waste-only repository. In February 1985, DOE submitted a report to the President recommending a combined commercial and defense repository. In April 1985, the President agreed that no basis appeared to exist for a defense-only repository and directed DOE to dispose of defense waste in the commercial repository.

About 8750 MTHM of reprocessed high-level waste from defense facilities at Savannah River, SC, Hanford, WA, and Idaho Falls, ID will be available by 2020 for disposal in the repository, according to the Draft 1988 Mission Plan Amendment. This waste will likely be solidified into a borosilicate glass

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matrix. About 640 MTHM of reprocessed high-level waste will come from the West Valley Demonstration Project, a facility for wastes from discontinued commercial reprocessing of spent fuel at that site. This reprocessed waste also will be solidified, probably in a borosilicate glass waste form.

Waste-form testing for the Yucca Mountain site is focusing on both spent fuel and reprocessed high-level waste. The performance of the waste form in providing the first barrier to radionuclide migration is being evaluated on the basis of the physical and chemical environment of the waste form after disposal, the performance of the waste container, and the emplacement configuration.

A major limitation on glass waste-form testing is that the actual waste glasses to be disposed of are not available, and their exact composition will not be established until after further testing. Reference waste-glass compositions are being used for studies on the effect of variation in glass composition on performance. (These glass compositions are designed by Savannah River Laboratory (SRL) for defense high-level waste, and by Pacific Northwest Laboratory (PNL) for the commercial high-level wastes to be vitrified under the West Valley Demonstration Project Act.) The reference compositions will be revised when better analyses of the composition of the wastes at SRL and West Valley are available. The test program will seek to establish upper bounds on leaching of important radionuclides, and the extent to which glass fracturing increases leach rate. Other factors influencing leach rate are temperature, pH of the leaching solution, formation of solid layers on the surface of the waste glass, irradiation, water volume, and chemistry.

It is possible that renewed reprocessing of spent fuel from nuclear power reactors may result in a greater proportion of reprocessed waste to spent fuel than is currently anticipated. Although such a departure from the current plan to dispose of mostly unprocessed spent fuel in the repository does not appear likely at this time, the Commission believes it is important to recognize the possibility that this situation could change.

The possibility of disposal of reprocessed waste as an alternative waste form to spent fuel assemblies was recognized by the Commission in the 1984 Waste Confidence Decision. The Commission noted that the disposal of waste from reprocessing had been studied for a longer time than the disposal of spent fuel, and that the

possibility of reprocessing does not alter the technical feasibility of developing a suitable waste package. The Commission went on to say that there is evidence that the disposal of reprocessed high-level waste may pose fewer technical challenges than the disposal of spent fuel. As long as DOE uses conservative assumptions and test conditions for evaluating the performance of different waste forms against NRC licensing requirements, the Commission has no basis to change its finding that there is reasonable assurance that reprocessing does not reduce confidence in the technical feasibility of designing and building a waste package that will meet NRC licensing requirements in a variety of geologic media.

I.A.3. The development of effective engineered barriers for isolating wastes from the biosphere

I.A.3.a. backfill materials.

At the time of the 1984 Waste Confidence Decision, DOE was developing conceptual designs for backfill in several geologic media. Most candidate sites at that time were in saturated rock, and the conceptual designs included backfilling or packing around waste containers to prevent or delay ground water flow which could enhance corrosion and radionuclide transport near the waste containers. The conceptual design for the engineered barrier system at the Yucca Mountain site has different parameters because the site is unsaturated; instead of backfill or packing around the waste container, there is to be an air gap between sides of the waste canister and the host rock.

Backfill material around the container is not required under NRC regulations for the waste package. NRC regulations require that "...containment of high-level waste within the waste packages [which includes the container] will be substantially complete for a period to be determined by the Commission...provided, that such period shall not be less than 300 years nor more than 1000 years after permanent closure of the repository" [10 CFR subsection 60.113(a)(1)(ii)(B)], and that the entire engineered barrier system meet the release rate performance objective of 1 part in 100,000 per year.

Backfill is also a component of the borehole, shaft, and ramp seals, which are not part of the engineered barrier system or the underground facility. Boreholes, shafts, and ramps must be sealed when the repository is permanently closed. This aspect of backfilling is discussed below under "Development of Sealants." Backfill

may also include crushed rock used to fill openings such as drifts in the underground facility. At the Yucca Mountain candidate site, DOE currently plans to fill openings in the underground facility at closure of the repository. Backfilling is not planned before repository closure because it is not needed for structural support for the openings, and it would make waste retrieval more difficult. At closure of the facility, however, openings will be backfilled with coarse tuff excavated for the facility. In the conceptual design provided in the SCP, the selection of coarse tuff as backfill material is based on numerical simulations performed by DOE which suggest that coarse tuff would be a more effective barrier to capillary flow in the backfill matrix than fine materials.

DOE's design for the engineered barrier system submitted with the license application will have to contain information sufficient for NRC to reach a favorable conclusion regarding the overall system performance objective. Backfill or packing around waste containers is not required by NRC regulations if DOE can demonstrate that applicable performance objectives can be met without it. If, on the basis of testing and experiments during site characterization, DOE decided that backfill would enhance engineered barrier system performance, the design would have to reflect this conclusion. DOE has already conducted research on a wide variety of candidate materials for backfill around waste packages in a variety of geologic media. The Commission continues to have confidence that backfill or packing materials can be developed as needed for the underground facility and waste package to meet applicable NRC licensing criteria and performance objectives.

I.A.3.b. Borehole and shaft seals.

The engineered barrier system described above is limited to the waste package and the underground facility as defined in 10 CFR part 60. The underground facility refers to the underground structure, including openings and backfill materials, but excluding shafts, boreholes, and their seals. Containment and release-rate requirements are specified for the engineered barrier system, but not for the borehole and shaft seals. Seals are covered under 10 CFR section 60.112, the overall post-closure system performance objective for the repository. Among other things, this provision requires that shafts, boreholes and their seals be designed to assure that releases of radioactive materials to the accessible

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environment following permanent closure conform to EPA's generally applicable standards for radioactivity. Although the criteria for seals given in 10 CFR part 60 do not specifically mention seals in ramps and the underground facility, it is reasonable to consider them together with borehole and shaft sealants, because the seals and drainage design in ramps and the underground facility could also affect the overall system performance of the geologic repository.

Construction of the exploratory shaft facility (ESF) will be the first major site characterization activity at the repository horizon. Currently, DOE is reviewing its plans for construction of exploratory shafts. According to the 1989 "Reassessment Report," DOE is reevaluating the "locations chosen for the two exploratory shafts, the method chosen (drilling and blasting) for the construction of the shafts, the means of access (ramps or shafts) to the repository horizon, the need for additional exploratory drifts, and the design of the shafts and other components of the exploratory shaft facility." This reevaluation of plans for the shaft facility is in response to concerns from the NRC staff and the Nuclear Waste Technical Review Board (NWTRB).

When the repository is decommissioned, NRC expects that most, if not all, shafts, ramps, and boreholes will probably have to be sealed to reduce the possibility that they could provide preferential pathways for radionuclide migration from the underground facility to the accessible environment. DOE estimates that as many as 350 shallow and 70 deep exploratory boreholes may be emplaced by the time site characterization has been completed at the Yucca Mountain site. Decommissioning may not occur for up to 100 years after commencement of repository operations. Because the final design for seals will likely have been modified from the initial license application design (LAD), DOE is viewing the seal LAD as serving two primary functions. As set forth in DOE's SCP for the Yucca Mountain candidate site, the seal LAD is to establish that: (1) "...technology for constructing seals is reasonably available;" and (2) "...there is reasonable assurance that seals have been designed so that, following permanent closure, they do not become pathways that compromise the geologic repository's ability to meet the post-closure performance objectives."

To establish the availability of technology for seal construction, DOE has identified at least 31 site properties

that need to be characterized in determining necessary seal characteristics. These properties include saturated hydraulic conductivity of alluvium near shafts, the quantity of water reaching the seals due to surface-flooding events, and erosion potential in the shaft vicinity. The SCP also discusses material properties that need to be identified to determine sealing components such as initial and altered hydrologic properties of materials.

The SCP indicates that DOE is planning to use crushed tuff and cements in the sealing program at the Yucca Mountain candidate site. The stated advantages of using tuff include minimizing degradation of seal material and avoiding disruption of ambient ground-water chemistry.

DOE's current design concept for meeting the overall performance objectives includes a combination of sealing and drainage. Seal requirements may be reduced in part by: (1) limiting the amount of surface water that may enter boreholes, shafts, and ramps; (2) selecting borehole, shaft, and ramp locations and orientations that provide long flow paths from the emplaced waste to the accessible environment above the repository; and (3) maintaining a sufficient rate of drainage below the repository horizon level so that water can be shunted past the waste packages without contacting them.

Although DOE's program is focusing on seals for the Yucca Mountain candidate site, the Commission finds no basis for diminished confidence that an acceptable seal can be developed for candidate sites in different geologic media. The Commission finds no evidence to suggest that it can not continue to have reasonable assurance that borehole, shaft, ramp, and repository seals can be developed to meet 10 CFR part 60 performance objectives.

I.B. Relevant Issues That Have Arisen Since the Commission's Original Decision

I.B.1. In support of its argument on technical feasibility, the Commission stated in its 1984 Waste Confidence Decision that "...DOE's program is

providing information on site characteristics at a sufficiently large number and variety of sites and geologic media to support the expectation that one or more technically acceptable sites will be identified." The NWPAA required, however, that DOE suspend site-specific site characterization activities under the Nuclear Waste Policy Act of 1982 at all sites other than the Yucca Mountain, NV site.

Under the NWPAA, the DOE program has been redirected to characterize candidate repository sites in sequence rather than simultaneously. If the Yucca Mountain site is found to be unsuitable, DOE must terminate site characterization activities there and provide Congress with a recommendation for further action, such as the characterization of another site. Because characterization of multiple sites now appears to be more directly related to the timing of repository availability than to the technical feasibility of geologic disposal as a concept, consideration of the Commission's aforementioned 1984 statement in light of the NWPAA will be discussed under Finding 2.

I.B.2. What is the relationship, if any, of the "S-3 Proceeding" to the current review of the Commission's 1984 Waste Confidence Findings? Would the planned revision of the S-3 rulemaking be affected if the Commission had to qualify its current confidence in the technical feasibility of safe disposal?

In its decision to remand to NRC the questions of whether safe offsite storage would be available by 2007-2009, or, if not, whether spent fuel could be safely stored onsite past those dates, the U.S. Circuit Court of Appeals observed that the issues of storage and disposal of nuclear waste were being considered by the Commission in an ongoing generic proceeding known as the "S-3" Proceeding.

The S-3 Proceeding was the outgrowth of efforts to address generically the NEPA requirement for an evaluation of the environmental impact of operation of a light water reactor (LWR). Table S-3 assigned numerical values for environmental costs resulting from uranium fuel cycle activities to support one year of LWR operation. NRC promulgated the S-3 rule in April 1974. In July 1976, the U.S. Circuit Court of Appeals found that Table S-3 was inadequately supported by the record regarding reprocessing of spent fuel and radioactive waste management, in part because the Commission, in reaching its assessment, had relied heavily on

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testimony of NRC staff that the problem of waste disposal would be resolved.

When the U.S. Circuit Court of Appeals issued the remand on what were to become the "Waste Confidence" issues in May 1979, NRC had pending before it the final amended S-3 rule. The Court regarded the resolution of the issue of waste disposal in the S-3 proceeding as being related to the issue raised by the petitioners in the appeals of the NRC decisions on the expansion of spent fuel storage capacity. The Court said that the "...disposition of the S-3 proceeding, though it has a somewhat different focus, may have a bearing on the pending cases."

The Commission approved the final S-3 rule in July 1979. In October 1979, the Commission issued a Notice of Proposed Rulemaking (NPR) on the Waste Confidence issues in response to the remand by the Court of Appeals. In the NPR, the Commission stated that the proceeding would "...draw upon the record compiled in the Commission's recently concluded rulemaking on the environmental impacts of the nuclear fuel cycle, and that the record compiled herein will be available for use in the general fuel cycle rule update discussed in that rulemaking."

In the final Table S-3 rule issued in 1979, the Commission had said that "...bedded salt sites can be found which will provide effective isolation of radioactive waste from the biosphere." When the Commission issued the 1984 Waste Confidence Decision, part of the basis for the discussion of waste management and disposal in the August 1979 final S-3 rule had changed. For example, in 1984 the repository program was proceeding under the NWP, which required that DOE recommend three sites for site characterization.

NRC is preparing to amend 10 CFR 51.51, adding new estimates for releases of Tc-99 and Rn-222, and a revised narrative explanation describing the basis for values contained in Table S-3. The amendment would also explain the environmental effects of potential releases from the light water reactor (LWR) fuel cycle, and postulate the potential radiation doses, health effects, and environmental impacts of these releases. It is unlikely that the revision will have any impact on the Commission's generic findings in the Waste Confidence proceeding. Nor is it likely that this reexamination of the Waste Confidence findings will affect the S-3 rule; the Waste Confidence Proceeding is not intended to make quantitative judgments about the environmental costs of waste disposal. Unless the Commission, in a future review of the Waste Confidence

decision, finds that it no longer has confidence in the technical feasibility of disposal in a mined geologic repository, the Commission will not consider it necessary to review the S-3 rule when it reexamines its Waste Confidence findings in the future.

I.B.3. To what extent do developments in spent fuel disposal technology outside of the United States (e.g., Swedish waste package designs) enhance NRC's confidence in the technical feasibility of disposal of high-level waste and spent fuel?

Spent fuel disposal technology is the subject of extensive research investigation in both Europe and North America. Advances in this technology are being communicated to the NRC staff both through bilateral agreements and the presentation of research results at international meetings.

Outside the U.S., studies of spent fuel as a waste form are now being conducted primarily in Canada and Sweden, although both France and West Germany have small programs in this area. The Swedish studies have been mainly concerned with boiling water reactor (BWR) spent fuel, whereas the Canadian studies focus on spent fuel from that country's CANDU reactors, which use unenriched uranium in a core immersed in "heavy" water made from deuterium. BWR and CANDU fuel, like pressurized water reactor (PWR) fuel, are uranium dioxide fuels clad in zircaloy. However, the burnup rates for these three fuel types vary considerably. Ongoing research studies on spent fuel include: work on the characterization of spent fuel as a waste form; the corrosion of spent fuel and its dissolution under oxidizing and reducing conditions; the radiolysis of ground water in the near vicinity of the spent fuel, and its effects on the dissolution of the fuel; and the development of models to predict the leaching of spent fuel over long time periods. The results of this work are steadily increasing our understanding of spent fuel as a waste form.

High-level radioactive waste, whether it is spent reactor fuel or waste from reprocessing, must be enclosed in an outer canister as part of the waste package. The canister surrounding the waste is expected to prevent the release of radioactivity during its handling at the repository site before emplacement. After emplacement in the repository, it is expected to prevent the release of radioactivity for a specified period of time after the repository is closed, by providing a barrier to protect the waste from coming into contact with ground water.

For practical reasons, canister materials may be divided into the following classes: (1) completely or partially thermodynamically stable materials such as copper; (2) passive materials such as stainless steel, titanium, Hastelloy, Inconel, and aluminum; (3) corroding or sacrificial materials such as lead and steel; and (4) non-metallic materials such as alumina and titanium dioxide ceramics and cement.

Sweden has been conducting an extensive canister research program over the past several years. The main canister material of interest is copper, but titanium, carbon steel, and alumina and titanium dioxide are also being studied as reasonable alternatives, should unexpected problems be discovered with using pure copper.

One of the Swedish canister designs is a 0.1-m thick copper container (as described previously in section I.A.2.a.), which is claimed to provide containment, in conjunction with an appropriate backfill material, for a period on the order of one million years. The critical factors for the isolation period for copper canisters are: (1) the presence of corrosive substances such as sulphide ions in the ground water; (2) the possibility of these substances reaching the canister surface; and (3) the degree of inhomogeneity, or pitting, of the resulting corrosion. Studies are continuing to obtain more information on pitting corrosion of copper and on techniques for welding thick-walled copper containers.

Several conceptual designs for canisters for the safe disposal of unprocessed spent fuel have also been developed in Canada. One canister design option is the supported-shell, metal-matrix concept, which involves packing the spent fuel bundles into a thin corrosion-resistant shell and casting the remaining space with a low melting point metal or alloy. Structural support for the shell would be provided by the resulting metal matrix. Lead is a possible matrix material because of its favorable casting properties, cost, and low melting point.

Other supported shell canister concepts include the packed-particulate and structurally-supported designs. In these designs, a thin outer shell is supported by a particulate material packed around a steel internal structure that contains the spent fuel bundles. Several materials have been identified for the fabrication of the corrosion resistant outer shell, including commercially pure and low-alloy titanium, high nickel-based alloys such as Inconel 625, and pure copper.

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Detailed designs have been produced for all three types of supported shell canisters incorporating either a titanium or nickel alloy shell less than 6-mm thick. A conceptual design has also been produced for a copper-shell structurally-supported canister and a metal-matrix container with a relatively thick (25-mm) copper shell and a lead matrix material. This last canister is intended to contain 72 used CANDU fuel bundles in four layers of 18 bundles each.

Both the Canadian and Swedish conceptual designs for the disposal of spent fuel in canisters provide for surrounding the canister with backfill material as part of the waste package when it is emplaced in the repository. This backfill material would be packed around the canister to retard the movement of ground water and radionuclides. Investigations of backfill material at the Stripa mine in Sweden have shown that bentonite and silica sand can be employed successfully as backfill, both around the canister and in repository tunnels. A bentonite-silica mixture is the recommended backfill material on the basis of its thermal and mechanical properties. Bentonite backfills have been shown to produce hydraulic conductivities that are very similar to the surrounding granite at Stripa. Problems concerning the variability of bentonite samples from different geographic locations can be eliminated if material from a single source is used. The presence of sulfur and some organic material, including bacteria, in many bentonites poses some problems related to microbially-accelerated corrosion. Treatment with hydrogen peroxide may be used to oxidize these organics. Heating the bentonite to 400 degrees C can also be effective, although this may alter the crystal structure of the bentonite.

Many countries intend to dispose of their high-level radioactive waste by first converting the wastes into a solid, vitrified form after reprocessing. Since the leaching of the waste form by circulating ground water after disposal is the most likely mechanism by which the radionuclides might be returned to the biosphere, the waste form must be composed of a highly stable material with an extremely low solubility in ground water. Thus, the waste form itself should function as an immobilization agent to prevent any significant release of radionuclides to the biosphere over very long time periods. The two primary materials currently being considered for use as solidified waste forms are borosilicate glass and SYNROC, a man-made titanate ceramic material.

SYNROC was initially developed in Australia as an alternative material to borosilicate glass. It is composed primarily of three minerals (hollandite, zirconolite, and perovskite) which collectively have the capacity to accept the great majority of radioactive high-level waste constituents into their crystal lattice structure. These three minerals, or closely related forms, occur naturally, and have been shown to have survived for many millions of years in a wide range of natural environments. SYNROC has the property of being extremely resistant to leaching by ground water, particularly at temperatures above 100 degrees C. In addition, the capacity of SYNROC to immobilize high-level wastes is not markedly impaired by high levels of radiation damage.

The high leach-resistance of SYNROC at elevated temperatures increases the range of geologic environments in which it may be used, such as deep geologic repositories in both continental and marine environments.

Research and development work on improving SYNROC production technology is currently being done jointly in Australia and Japan. New methods of using metal alkoxides in the fabrication of SYNROC to obtain high homogeneity and lowered leachability have recently been developed in Australia. The Japanese have recently developed a new method that uses titanium hydroxide, as a reducing agent to produce SYNROC with a high density and low leach rate. A pilot facility for the production of non-radioactive SYNROC is now in operation in Australia, and a small pilot facility for producing SYNROC with radioactive constituents is being completed in Japan.

On the basis of current information from the foreign studies just described on canisters, spent fuel as a waste form, backfill materials, and alternatives to borosilicate glass waste forms, the Commission concludes that there is no basis for diminished confidence that an acceptable waste package can be developed for safe disposal of high-level waste and spent fuel.

I.C. Conclusion on Finding 1

The Commission has reexamined the basis for its First Finding in the 1984 Waste Confidence Decision in light of subsequent program developments, and concludes that Finding 1 should be reaffirmed.

The technical feasibility of a repository rests initially on identification of acceptable sites. At this time, the Commission is not aware of any evidence indicating that Yucca

Mountain is not acceptable for site characterization. There are many outstanding questions regarding the licenseability of the site, however, and they must be answered satisfactorily in order for NRC to issue a construction authorization for that site. If data obtained during site characterization indicate that the Yucca Mountain site is not suitable for a repository, DOE is required by the NWPA to terminate site characterization activities and report to Congress. Within six months of that determination, DOE must make a recommendation to Congress for further action to assure the safe, permanent disposal of spent fuel and high-level waste. DOE could recommend, for example, that Congress authorize site characterization at other sites. Considering DOE's investigations of other potentially acceptable sites before its exclusive focus on Yucca Mountain, the Commission has no reason to believe that, given adequate time and program resources, a technically acceptable site can not be found.

The technical feasibility of geologic disposal also depends on the ability to develop effective engineered barriers, such as waste packages. DOE is currently evaluating six candidate materials for waste containers, including austenitic steel and copper- and nickel-based alloys, and is planning waste-form testing based on both spent fuel and high-level waste in borosilicate glass. On the basis of DOE's program, and results from Swedish investigations of a copper waste container, the Commission is confident that, given a range of waste forms and conservative test conditions, the technology is available to design acceptable waste packages.

In addition to the materials testing for the waste container and waste form, there may be additional measures that can be taken to improve the effectiveness of the engineered barriers. It is known, for example, that the heat-loading characteristics of the wastes diminish with time. Also, the longer wastes are stored before disposal, the smaller will be the quantities of radionuclides available for transport to the accessible environment.

It is also technically feasible to separate from radioactive wastes the radionuclides that constitute the principal source of heat from the nuclides of greatest long-term concern. The former radionuclides, mainly fission products such as cesium-137 and strontium-90, could then be stored for a period of years while the fission products decay to the point where they could be disposed of either in a manner

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that does not require the degree of confinement provided by a geologic repository, or in a repository with less concern for thermal disturbance of the host rock's expected waste isolation properties. Meantime, the longer-lived remaining radionuclides, such as transuranic wastes with elements heavier than uranium, could be disposed of in a repository away from the fission products and without the high thermal loadings that would otherwise have to be considered in predicting the long-term waste isolation performance of the geologic setting. France, Great Britain, and Japan are currently pursuing this waste management strategy or a variant of it.

The Commission emphasizes here that it does not believe that recycling technologies are required for the safety or feasibility of deep geologic disposal in the United States. Other countries, such as Canada, the Federal Republic of Germany, and Sweden are pursuing disposal strategies based on a similar view. Reprocessing, if employed in its current stage of development, would result in additional exposures to radiation and volumes of radioactive wastes to be disposed of. For the purpose of finding reasonable assurance in the technical feasibility of geologic disposal, however, it is worth noting that technology is currently available to permit additional engineering control of waste forms if, for reasons not now foreseen, such control were deemed desirable at some future time. Meanwhile, the Commission continues to have confidence that safe geologic disposal is technically feasible for both spent fuel and high-level waste.

DOE's reference design for the waste package in the December 1988 Site Characterization Plan does not include backfill or packing around waste containers in the emplacement boreholes. Neither is required under NRC rules so long as DOE can show that applicable regulatory criteria and objectives will be met. An air gap between the container and the host rock is currently one of the barriers in DOE's design for meeting the performance objective. DOE has conducted investigations on a variety of candidate materials for backfill in a variety of geologic media, and the Commission finds no basis to qualify its past confidence that backfill materials can be developed, if needed, to meet applicable NRC requirements.

The December 1988 reference design for sealing boreholes, shafts, ramps and the underground facility at the Yucca Mountain candidate site employs crushed tuff and cement. Regardless of

the geologic medium of the candidate site, DOE will have to show that the license application design meets NRC post-closure performance objectives. The Commission continues to have reasonable assurance that DOE's program will lead to identification of acceptable sealant materials for meeting these objectives.

No major breakthrough in technology is required to develop a mined geologic repository. NRC will not be able to license a repository at a particular site, however, until there is sufficient information available for that site. The information needed to license a site includes site characterization data, data on repository design, and waste package design sufficient for performance assessment of the entire waste disposal system. Further, the Commission recognizes the challenge posed by the need to predict impacts of a repository on human health and the environment over very long periods of time. It will not be possible to test the accuracy of long-term repository performance assessment models in an absolute sense. The NRC does believe that existing performance assessment models have the potential to provide a basis for deciding whether a system for geologic disposal of high-level waste is acceptable, and can provide a sufficient level of safety for present and future generations under certain conditions. These conditions include addressing uncertainties, and gathering data from specific sites.

Overall, from its reexamination of issues related to the technical feasibility of geologic disposal, the Commission concludes that there is reasonable assurance that safe disposal of high-level waste and spent fuel in a mined geologic repository is technically feasible.

Original Finding 2: The Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level waste and spent fuel will be available by the years 2007-2009, and that sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high-level radioactive waste and spent fuel originating in that reactor and generated up to that time.

Revised Finding 2: The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial

high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

II.A. Issues Considered in Commission's 1984 Decision on Finding 2

II.A.1. Finding Technically Acceptable Sites in a Timely Fashion

In order for the Commission to find that any candidate site for a repository is technically acceptable (that is, in compliance with NRC licensing requirements), the site must undergo comprehensive site characterization to assess its hydrologic, geologic, geochemical, and rock mechanics properties. It is possible that a site may be found unacceptable on the basis of surface-based testing, early in-situ testing or other site characterization activities. It will not be possible, however, for the NRC staff to take a position before a licensing board that a site will meet NRC requirements for construction authorization until the results of all site characterization activities are available. Even then, the staff may conclude that the evidence from site characterization does not constitute reasonable assurance that NRC performance objectives will be met. Also, the results of the licensing hearings on construction authorization cannot be predicted. If construction is authorized and when it is substantially complete, DOE is required to obtain, in addition to the construction authorization permit, a license to receive and possess waste at the geologic repository operations area in order to commence repository operations. These considerations argue for maintaining the ready availability of alternative sites if, after several years, site characterization or licensing activities bring to light difficulties at the leading candidate site.

In support of its argument on technical feasibility, the Commission stated in its 1984 Waste Confidence Decision that "...DOE's program is providing information on site characteristics at a sufficiently large number and variety of sites and geologic media to support the expectation that one or more technically acceptable sites will be identified." At the time, DOE was required under the NWPA to characterize three candidate repository sites.

The NWPA had a major impact on DOE's repository program, however. Under the NWPA, DOE was required to suspend site-specific activities at the Hanford, WA and Deaf Smith County, TX sites, which had been approved by the President for site characterization for the first repository. Redirection of the repository program to single-site

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characterization (or, if necessary, sequential site characterization if the Yucca Mountain site is found to be unsuitable) will permit DOE to concentrate its efforts and resources on information gathering at a single site, as opposed to spreading out its efforts over a range of sites. The possible schedular benefits to single-site characterization, however, must be weighed for the purposes of this Finding against the potential for additional delays in repository availability if the Yucca Mountain site is found to be unsuitable. By focusing DOE site characterization activities on Yucca Mountain, the NWPAA has essentially made it necessary for that site to be found suitable if the 2007-2009 timeframe for repository availability in the Commission's 1984 Decision is to be met. Clearly, the Commission cannot be certain at this time that the Yucca Mountain site will be acceptable.

Although the Commission has no reason to believe that another technically acceptable site can not be found if the Yucca Mountain site proves unsuitable, several factors raise reasonable doubts as to the availability of even one repository by 2007-2009. These include: (1) the current reliance on a single site with no concurrently available alternatives; (2) the probability that site characterization activities will not proceed entirely without problems; and (3) the history of schedular slippages since passage of the NWPA. For example, DOE's schedule for the first repository slipped five years (from 1998 to 2003) between January 1983, when the NWPA was enacted, and January 1987, when the first Draft Mission Plan Amendment was issued. The schedule for excavation of the exploratory shaft for the Yucca Mountain site has slipped by more than five years since the issuance of the PDS in March 1986. In the past several years, DOE has cited numerous reasons for program slippages, including the need for a consultation process with States and Tribes, Congressional actions (e.g., the barring of funds in the 1987 budget appropriation for drilling exploratory shafts), and DOE's recognition that the EIS and license application would require more technical information than previously planned.

In the November 1989 "Report to Congress on Reassessment of the Civilian Radioactive Waste Management Program," DOE announced a further extension of three years until 1992 for sinking the exploratory shaft, and extensions until 2001 for submittal of the license application and 2010 for repository availability. DOE attributes

the causes for these delays to prolonging the schedule for site characterization and repository development activities, and to the unwillingness, to date, of the State of Nevada to issue the permits required for DOE to begin testing. In the "Reassessment Report," DOE proposes to focus the repository program on the evaluation of features of the site that can be studied through surface-based testing, beginning in January 1991. The aim of this surface-based testing program is to make an early determination as to whether there are any features of the site that would render it unsuitable for development as a repository. Of course, the site may be found unsuitable or unlicenseable at any time during the site characterization or licensing process. The NRC supports DOE's efforts to reach an early determination that this may be the case. If the Yucca Mountain site is unsuitable, it will be necessary to begin work to identify and characterize another candidate site for a repository. The sooner this determination is made, the sooner DOE will have an alternative site available for disposal of high-level waste.

The NRC had anticipated additional delays in repository program milestones when it issued its Proposed Waste Confidence Decision Review (54 FR 39767). One of the key issues in the repository program to date has been the need for DOE to develop a qualified quality assurance (QA) program. For example, DOE has taken the position, with which NRC agrees, that sinking of exploratory shafts should not occur before it has a qualified quality assurance (QA) program in place. The Commission believes that DOE's aggressive, success-oriented schedule for this milestone did not allow for unexpected developments. Indeed, the effort to develop an acceptable QA program has, in itself, identified problems in design control and other processes that must be resolved in order to establish a qualified program that addresses all applicable NRC licensing requirements. DOE has made progress in development of its QA program with seven contractor plans accepted in October and November 1989. NRC expects that DOE should be able to have the study plans and technical procedures which implement the contractor plans ready in time for surface-based testing at the Yucca Mountain site to begin by January 1991, consistent with the schedule for starting surface-based testing in the Reassessment Report.

DOE's current schedule appears to be more realistic than previous schedules.

Yet even this schedule could prove unattainable due to difficulties of a non-technical nature that are outside of DOE's control, for example litigation over gaining access to the Yucca Mountain site. Although the NWPAA is a clear and strong reaffirmation of Congressional support for the timely development of a repository, the Commission in this Waste Confidence review cannot ignore the potential for delay in repository availability if the Yucca Mountain site, or any other single site designated for site characterization, is found to be unsuitable. Without alternative sites undergoing simultaneous characterization or even surface-based testing, DOE will have to begin characterizing another site if the site currently selected for characterization proves unsuitable. The earlier a determination of unsuitability can be made, the smaller the impact of such a finding would be on the overall timing of repository availability.

DOE has estimated conservatively that it would require approximately 25 years to begin site screening for a second repository, perform site characterization, submit an EIS and license applications, and await authorizations before the repository could be ready to receive waste. In its June 1987 Mission Plan amendment, DOE stated "It ... seems prudent to plan that site-specific screening leading to the identification of potentially acceptable sites should start about 25 years before the start of waste acceptance for disposal." DOE went on to say that it considered this estimate to be conservative because it does not account for expected schedular benefits from the first repository program, including improvements in such areas as site screening, site characterization, and performance assessment techniques.

Although DOE's estimate was premised on the successful completion of a program for the first of two repositories, schedular benefits from improvements in the understanding of waste isolation processes would still be available. The glass waste form from the Defense Waste Processing Facility now under construction at Savannah River, SC, for example, will be available for testing under simulated repository conditions well before the turn of the century under current DOE schedules, and improvements in the modelling of spent fuel behavior within waste canisters can be applied in performance assessments largely irrespective of the geology of a site. It may also be pertinent that when DOE made its 25-year estimate for the second repository program in mid-1987, the law at the time

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required the simultaneous characterization of three sites, so that DOE could not proceed to develop one site for a repository until the completion of characterization at the site that required the most time.

In view of DOE's new schedule, it no longer appears feasible for repository operation to commence prior to 2010. As stated in the Proposed Decision Review, the Commission does not believe it would be prudent to reaffirm the Agency's 1984 finding of reasonable assurance that the 2007-2009 timetable will be met. As the Court of Appeals noted in remanding this issue to NRC, the ultimate determination of whether a disposal facility will be available when needed "...can never rise above a prediction." The Commission is in the position of having to reach a definitive finding on events which are approximately two decades away. We believe that the institutional timescale for this question can more realistically be framed in decades than in years. As the program proceeds into the next century, it will become easier for NRC to make more definitive assessments, if necessary, of the time a repository will be available.

In light of all these considerations, the Commission believes it can have reasonable assurance that at least one repository will be available within the first quarter of the twenty-first century. This estimate is based on the time it would take for DOE to proceed from site screening to repository operation at a site other than Yucca Mountain, if this should prove necessary. Assuming for the sake of conservatism that Yucca Mountain would not be found suitable for repository development, it is reasonable to expect that DOE would be able to reach this conclusion by the year 2000. This would leave 25 years for the attainment of repository operations at another site.

NRC will reassess progress towards attaining repository operation by 2025 prior to 2000 during its next scheduled review of its Waste Confidence Findings, if not sooner. DOE's current focus on surface-based testing as an early indicator of repository suitability should help provide a strong basis for evaluating the likelihood of meeting the 2025 estimate of repository availability.

II.A.2. Timely Development of Waste Packages and Engineered Barriers.

The November 1989 Reassessment Report announced that "major activities related to the design of a repository at the Yucca Mountain site and waste package are being deferred. They will be resumed when more information is available concerning the suitability of

the site. This approach will conserve resources and allow the DOE to concentrate efforts on scientific investigations." Prior to the Reassessment Report, DOE's most recent conceptual design for the waste package was discussed in the Site Characterization Plan (SCP) for the Yucca Mountain site. As information is obtained from site characterization activities and laboratory studies, the conceptual design will evolve in successive stages into the Advanced Conceptual Design (ACD), the LAD, and the final procurement and construction design. DOE has identified four areas of investigation related to the waste package LAD: (1) waste package environment; (2) waste form and materials testing; (3) design, analysis, fabrication, and prototype testing; and (4) performance assessment. Numerous uncertainties exist in each of these areas. DOE's testing program will attempt to reduce uncertainties in these areas where possible. For example, *in-situ* testing is expected to decrease significantly uncertainties regarding the repository host rock mass in which the waste packages will be emplaced. In the area of performance assessment, however, where results of relatively short-term testing of complex rock-waste-ground water interactions must be extrapolated over as many as 10,000 years, it may be necessary to rely more heavily on the use of simplifying assumptions and bounding conditions than in other areas of investigation.

As discussed under Finding 1, the Commission continues to have reasonable assurance that waste packages and engineered barriers can be developed which will contribute to meeting NRC performance objectives for the repository. Development of acceptable waste packages and engineered barriers for a repository in the 2010 timeframe will depend on the overall acceptability of the Yucca Mountain site. If the site is found to be unsuitable, waste package and engineered barrier development will have to begin for a different site, because under the NWPA, DOE may not carry out site characterization and waste package development work at sites other than the Yucca Mountain site.

Although much of the work related to waste form, materials, and performance assessment for the waste package can proceed independently of *in-situ* testing, the investigations related to waste package environment depend on the schedule for this testing. The schedule for *in-situ* testing depends on when DOE is able to resolve outstanding issues which have impeded shaft sinking and

in-situ testing, and on DOE's being granted access to the site to begin surface-based testing.

In sum, the Commission is not aware of any scientific or technical problems so difficult as to preclude development of a waste package and engineered barrier for a repository at Yucca Mountain to be available within the first quarter of the twenty-first century. Moreover, even given the uncertainty regarding the ultimate finding of site acceptability, and the uncertainty concerning the range of site-related parameters for which the engineered facility and waste package will have to be designed, the Commission finds reasonable assurance that waste package and engineered barrier development can be completed on a schedule that would permit repository operation within the first quarter of the twenty-first century. If necessary (that is, if Yucca Mountain were found unsuitable by the turn of the century), DOE could initiate site characterization and develop waste packages and engineered barriers at another site or sites and still commence operation before the end of the first quarter of that century.

II.A.3. Institutional Uncertainties.

II.A.3.a. Measures for dealing with Federal-State-local concerns.

In its 1984 Waste Confidence Decision, the Commission found that the NWPA should help to minimize the potential that differences between the Federal Government and States and Indian tribes will substantially disrupt or delay the repository program. The Commission noted that the NWPA reduced uncertainties regarding the role of affected States and tribes in repository site selection and evaluation. The Commission also said that the decision-making process set up by the NWPA provides a detailed, step-by-step approach that builds in regulatory involvement, which should also provide confidence to States and tribes that the program will proceed on a technically sound and acceptable basis. Despite the expected and continuing State opposition to DOE siting activities, the Commission has found no institutional developments since that time that would fundamentally disturb its 1984 conclusions on this point.

NRC regulatory involvement, for example, has indeed been built into the process. DOE has continued its interactions with NRC regarding repository program activities since the Commission's 1984 Waste Confidence decision was issued. NRC provided comments to DOE on major program

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documents such as the Siting Guidelines and the PDS as required by the NHPA, and NRC concurred on those documents. NRC also reviewed and provided comments to DOE on the DEAs and FEAs. In the December 22, 1986 letter to DOE on the FEAs, the NRC staff noted that "...significant efforts were made by DOE to respond to each of the NRC staff major comments on the DEAs, and in fact, many of these comments have been resolved." NRC provided comments to DOE on the 1987 Draft Mission Plan Amendment, and DOE responded to most of these comments in the Final Mission Plan Amendment provided to Congress on June 9, 1987.

Since enactment of the NHPAA in December 1987, DOE-NRC interactions have focused on the Yucca Mountain site. In January 1988, DOE issued the Consultation Draft Site Characterization Plan (CDSCP) for the Yucca Mountain site. The NRC staff provided comments in the form of draft and final "point papers" on the CDSCP. The NRC comments included several objections related to: (1) the failure to recognize the range of alternative conceptual models of the Yucca Mountain site; (2) the status of the quality assurance (QA) plans for site characterization activities; and (3) concerns related to the exploratory shaft facility. Although the December 1988 SCP shows improvement over the CDSCP, NRC continues to have an objection involving the need for implementing a baselined QA program before beginning site characterization and an objection involving the need for DOE to demonstrate the adequacy of both the ESF design and the design control process. Prior to the November 1989 Reassessment Report, DOE had committed to having a qualified QA program in place before sinking the exploratory shaft at the Yucca Mountain site.

This commitment has not changed. However, in view of the extension in the schedule for shaft sinking from November 1989 to November 1992, qualified QA plans are needed in the near term for meeting the January 1991 schedule for surface-based testing. In addition to having a qualified QA program in place, DOE must also have issued the pertinent study plans for site characterization activities they wish to begin.

DOE has taken measures to clarify and institutionalize the roles of other Federal agencies in addition to NRC. In the Draft 1988 Mission Plan Amendment, DOE described interactions with these agencies. DOE has a Memorandum of Understanding (MOU) with the Mine Safety and Health Administration of the

Department of Labor for technical support and oversight for shaft construction and other site characterization activities, and with the Department of Transportation to define the respective responsibilities of the two agencies in the waste disposal program. DOE also has interagency agreements with the Bureau of Mines and the U.S. Geological Survey of the Department of the Interior.

DOE's efforts to address the concerns of States, local governments, and Indian tribes have met with mixed results. For example, DOE has not succeeded in finalizing any consultation and cooperation (C&C) agreements as required under section 117(c) of the NHPA, as amended. These agreements were to help resolve State and Tribal concerns about public health and safety, environmental, and economic impacts of a repository. Publication of the Siting Guidelines under section 112(a) of the NHPA resulted in numerous lawsuits challenging the validity of the Guidelines. Similarly, the FEAs were challenged in the Ninth Circuit by affected States and tribes.

The NHPAA did not curtail financial assistance to affected States and tribes, except to redefine and redistribute it if DOE and a State or tribe enter into a benefits agreement. The State of Nevada and affected local governments are eligible to receive financial assistance. DOE has attempted to negotiate an agreement with the State of Nevada for monetary benefits under Section 170 of the NHPAA. This Section would provide for payments of \$10 million per year before receipt of spent fuel, and \$20 million per year after receipt of spent fuel until closure of the repository. These payments would be in addition to certain monetary benefits for which the State is eligible under the NHPA, as amended. Also under a benefits agreement, a Review Panel would be constituted for the purpose of advising DOE on matters related to the repository, and for assisting in the presentation of State, tribal, and local perspectives to DOE. The beneficiary to a benefits agreement must waive its right to disapprove the recommendation of the site for a repository and its rights to certain impact assistance under Sections 116 and 118 of the NHPA, as amended. To date, the State of Nevada has declined DOE's offer to negotiate a benefits agreement. In 1989, the State of Nevada requested \$23 million for work on Yucca Mountain. Congress appropriated \$5 million and authorized DOE to release an additional \$6 million at the discretion of the Secretary on the basis of good faith efforts of the State to

allow technical investigations to begin at the site.

The NHPAA introduced several new organizational entities to the repository program with responsibilities that may contribute to resolving concerns of Federal, State, and local governments involved in the program. Under section 503 of the NHPAA, the Nuclear Waste Technical Review Board (NWTB) is to evaluate the technical and scientific validity of DOE activities under the NHPAA, including site characterization and activities related to packaging or transportation of spent fuel. The NHPAA also established the Office of Nuclear Waste Negotiator, who is to seek to negotiate terms under which a State or Indian tribe would be willing to host a repository or MRS facility at a technically qualified site. Among the duties of the Negotiator is consultation with Federal agencies such as NRC on the suitability of any potential site for site characterization.

Secretary of Energy James Watkins has emphasized the importance of the Negotiator to the success of the program. A Negotiator could contribute to the timely success of the repository program by providing an alternative site to the Yucca Mountain site that would still have to be technically acceptable, but that would enjoy the advantage of reduced institutional uncertainties resulting from opposition of State or affected Indian tribes. The President nominated and the Senate recently confirmed David Leroy to be the Negotiator.

An additional measure which may facilitate documentation and communication of concerns related to a repository is the Licensing Support System (LSS). The LSS is to provide full text search capability of and easy access to documents related to the licensing of the repository. Although the primary purpose of the LSS is to expedite NRC's review of the construction authorization application for a repository, it will be an effective mechanism by which all LSS participants, including the State and local governments, can acquire early access to documents relevant to a repository licensing decision. DOE is responsible for the design, development, procurement and testing of the LSS. LSS design and development must be consistent with objectives and requirements of the Commission's LSS rulemaking and must be carried out in consultation with the LSS Administrator and with the advice of the Licensing Support System Advisory Review Panel. NRC (LSS Administrator) is responsible for the management and operation of the

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LSS after completion of the DOE design and development process.

Procedures for the use of the LSS are part of revisions to 10 CFR part 2, NRC's Rules of Practice for the adjudicatory proceeding on the application to receive and possess waste at a repository. These revisions were the result of a "negotiated rulemaking" process in which affected parties meet to reach consensus on the proposed rule. The members of the negotiating committee included: DOE; NRC; State of Nevada; coalition of Nevada local governments; coalition of industry groups; and a coalition of national environmental groups. The coalition of industry groups dissented on the final text of the proposed rule, but the negotiating process enabled NRC to produce a proposed rule reflecting the consensus of most of the interested parties on an important repository licensing issue.

NRC is committed to safe disposal of radioactive waste and the protection of public health and safety and the environment. Any State with a candidate site for a repository should be assured that a repository will not be licensed if it does not meet NRC criteria. NRC has its own program for interaction with the State of Nevada and affected units of local government, and will continue to provide information to Nevada and consider State concerns as requested.

Given the difficult nature of siting a repository, the Commission believes that the NWPA, as amended, has achieved the proper balance between providing for participation by affected parties and providing for the exercise of Congressional authority to carry out the national program for waste disposal. The NWPA provides adequate opportunity for interaction between DOE and other Federal agencies, States, tribes, and local governments such that concerns can be presented to DOE for appropriate action. Both the NRC and the State or tribe can exercise considerable prerogative regarding repository development. The State or tribe may disapprove the recommendation that the site undergo repository development. This disapproval can be overridden only by vote of both houses of Congress within 90 days of continuous session. If the State disapproval is overridden, DOE may submit an application for authorization to construct the repository, and, if approved, a subsequent application to receive and possess waste for emplacement. NRC will make decisions on the license applications according to the requirements of its statutory mission.

Despite the complexity of the overall process and the strong views of the participants in it, the Commission sees no compelling reason to conclude that current institutional arrangements are inadequate to the task of resolving State, Federal, and local concerns in time to permit a repository to be available within the first quarter of the twenty-first century.

II.A.3.b. Continuity of the management of the waste program

At the time the Commission issued its 1984 Waste Confidence Decision, the possibility that DOE functions would be transferred to another Federal agency was cited as the basis for concerns that the resolution of the radioactive waste disposal problem would likely undergo further delays. The Commission responded that in the years since the Administration had proposed to dismantle DOE in September 1981, Congress had not acted on the proposal. The Commission further stated that even if DOE were abolished, the nuclear waste program would simply be transferred to another agency. The Commission did not view the potential transfer in program management as resulting in a significant loss of momentum in the waste program. The Commission also concluded that the enactment of the NWPA, which gave DOE lead responsibility for repository development, further reduced uncertainties as to the continuity of management of the waste program.

Section 303 of the NWPA did, however, require the Secretary of Energy to "...undertake a study with respect to alternative approaches to managing the construction and operation of all civilian radioactive waste facilities, including the feasibility of establishing a private corporation for such purpose." To carry out this requirement, DOE established the Advisory Panel on Alternative Means of Financing and Managing Radioactive Waste Facilities, which came to be known as the "AMFM" Panel. The Panel's final report, issued in December 1984, concluded that several organizational forms are more suited than DOE for managing the waste program, including an independent Federal agency or commission, a public corporation, and a private corporation. The report identified a public corporation as the preferred alternative on the basis of criteria developed by the Panel for an acceptable waste management organization. In particular, the report indicated that a public corporation would be stable, highly mission-oriented, able to maintain credibility with stakeholders, and more

responsive to regulatory control than a Federal executive agency.

Commenting on the AMFM Panel's report in April 1985, DOE recommended retaining the present management structure of the waste program at least through the siting and licensing phase of the program. Congress did not take action to implement the Panel's recommendations, and DOE's management of the waste program has remained uninterrupted.

By enacting the NWPA, Congress effectively reaffirmed DOE's continued management of the waste program. Congress did not revise DOE's role as the lead agency responsible for development of a repository and an MRS. Congress did establish several new entities for the purpose of advising DOE on matters related to the waste program, such as the NWTRB and the Review Panel, to be established if DOE and a State or tribe enter into a benefits agreement under Section 170 of the NWPA. Congress provided further indication of its intent that DOE maintain management control of the waste program for the foreseeable future in requiring, under Section 161, that the Secretary of DOE "...report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository."

This is not to say, however, that there have been no management problems in the DOE program. Since the enactment of the NWPA in 1983, only one of the five Directors of DOE's Office of Civilian Radioactive Waste Management (OCRWM) has held the position on a permanent basis. Inadequate progress toward an operating repository has concerned several Congressional observers, including Senator J. Bennett Johnston, Chairman of the Senate Energy and Natural Resources Committee. In February 1989 confirmation hearings for then-Secretary-of-Energy-designate James Watkins, Senator Johnston strongly criticized mounting cost projections and lack of progress in the program, and called for new and stronger management.

In the November 1989 Reassessment Report, DOE discussed several new initiatives for improving its management of the repository program. The initiatives include "direct-line" reporting from the Yucca Mountain Project Office to the Office of Civilian Radioactive Waste Management (OCRWM), and an independent contractor review of OCRWM management structures, systems and procedures to identify program redundancies, gaps, and

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strengths. The OCRWM is also implementing improvements in the overall Program Management System, the QA program, and establishment of program cost and schedule baselines.

Whether the management structure of the repository development program should in fact be changed is a decision best left to others. The Commission believes that a finding on the likely availability of a repository should take management problems into account, but finds no basis to diminish the degree of assurance in its 1984 conclusion on this issue. Events since the submission of the AMFM Panel report do not indicate that there will be a fundamental change in the continuity of the management structure of the program any time soon. In addition, it cannot be assumed that the program would encounter significantly less difficulty with a new management structure than it would continuing under the present one. Under either scenario, however, the Commission believes it would be more prudent to expect repository operations after the 2010 timeframe than before it. Neither the problems of a new management structure nor those of the existing one are likely to prevent the achievement of repository operations within the first quarter of the next century, however.

II.A.3.c. Continued funding of the nuclear waste management program

Section 302 of the NWPA authorized DOE to enter into contracts with generators of electricity from nuclear reactors for payment of 1.0 mill (0.1 cent) per kilowatt-hour of net electricity generated in exchange for a Federal Government commitment to take title to the spent fuel from those reactors. In the 1984 Waste Confidence Decision, the Commission noted that all such contracts with utilities had been executed. After the 1984 Decision, then-President Reagan decided that defense high-level wastes are to be collocated with civilian wastes from commercial nuclear power reactors. DOE's Office of Defense Programs is to pay the full cost of disposal of defense waste in the repository.

DOE is required under Section 302(a)(4) of the NWPA, as amended, "...annually [to] review the amount of the fees...to evaluate whether collection of the fees will provide sufficient revenues to offset the costs..." In the June 1987 Nuclear Waste Fund Fee Adequacy Report, DOE recommended that the 1.0 mill per kilowatt-hour fee remain unchanged. This assessment was based on the assumption that an MRS facility would open in 1998, the first repository would open in 2003, and the second repository in 2023. These

assumptions do not reflect changes in the waste program brought about by the NWPA enacted in December 1987.

Two such changes with significant potential impacts were the suspension of site-specific activities related to the second repository until at least 2007, and the linkage between MRS construction and operation and the granting of a repository construction authorization, which will probably occur no earlier than 1998.

DOE has not issued a fee adequacy report since the June 1987 report. When the updated report is released, it is expected to reflect overall program cost savings to the utilities resulting from: (1) limiting site characterization activities to a single site at Yucca Mountain, NV; and (2) the DOE Office of Defense Programs' sharing other program costs with generators of electricity "...on the basis of numbers of waste canisters handled, the portion of the repository used for civilian or defense wastes, and the use of various facilities at the repository," in addition to paying for activities solely for disposing of defense wastes. An additional factor which may eventually also contribute to the overall adequacy of Nuclear Waste Fund fees is the likelihood that a significant number of utilities will request renewals of reactor operating lifetimes beyond their current OL expiration dates. OL renewal would provide additional time during which Nuclear Waste Fund fees could be adjusted, if necessary, to cover any future increase in per-unit costs of waste management and disposal. It is expected that the new report may reflect a recent Court decision which found that fees paid into the Nuclear Waste Fund be adjusted to reflect transmission and distribution losses.

The Commission recognizes the potential for program cost increases over estimates in the 1987 Nuclear Waste Fund Fee Adequacy Report. If there is a significant delay in repository construction, for example, it is reasonable to assume that construction costs will escalate. There may also be additional costs associated with at-reactor dry cask storage of spent fuel, if DOE does not have a facility available to begin accepting spent fuel by the 1998 date specified in the NWPA. These costs would be further increased if one or more licensee was to become insolvent and DOE was required to assume responsibility for storage at affected reactors before 1998.

In the event of insolvency, DOE would still have sufficient funds to take over responsibility for managing spent fuel until a repository is available. Because spent fuel disposal costs are directly related to the amount of electricity

generated, with contributions to the NWF based on a kilowatt-hour surcharge that must be paid in short-term installments, utilities can be presumed to be mostly up-to-date with their contributions. It is highly unlikely that a utility would jeopardize its contract for spent fuel disposal with DOE by defaulting on a periodic payment to save a few million dollars. Even if a utility were to default, it would not be much in arrears for its spent fuel before it would trigger close DOE scrutiny and mitigative action.

Larger amounts in default could possibly occur with those relatively few utilities that have not paid their full share of pre-1983 collections. This issue arises because several utilities elected to defer payment for spent fuel generated prior to April 1983 into the fund and, instead, themselves hold the money that was collected from ratepayers for the one-time fee. DOE's Inspector General believes that some of those utilities may not be able to make their payments when due. The NRC understands from OCRWM staff that, if a nuclear utility licensee were to default on its one-time contribution to the NWF, DOE is not precluded from accepting for disposal all spent fuel from that utility. Thus, the NRC does not view this issue as affecting its confidence that the spent fuel will be disposed of. Rather, the issue is one of equity--that is, will a utility and its customers and investors or U.S. taxpayers and/or other utilities ultimately pay for disposal of spent fuel generated prior to April 1983. The Commission does not believe that a licensee's potential default has a direct bearing on the Commission's Waste Confidence Decision.

The full impact of the program redirection resulting from the NWPA and the outlook for the timing of repository availability will continue to be assessed annually. If it does appear that costs will exceed available funds, there is provision in the NWPA for DOE to request that Congress adjust the fee to ensure full-cost recovery. Thus, the Commission finds no reason for changing its basic conclusion that the long-term funding provisions of the Act should provide adequate financial support for the DOE program.

II.A.3.d. DOE's schedule for repository development

At the time that the 1984 Waste Confidence Decision was issued, the Nuclear Waste Policy Act of 1982, enacted in January 1983, had been in effect for less than 20 months. The NWPA had established numerous deadlines for various repository program milestones. Under section

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112(b)(1)(B), the NWPA set the schedule for recommendation of sites for characterization no later than January 1, 1985. Section 114(a)(2) specified that no later than March 31, 1987, with provision for a 12-month extension of this deadline, the President was to recommend to Congress one of the three characterized sites qualified for an application for repository construction authorization. Under section 114(d), NRC was to issue its decision approving or disapproving the issuance of a construction authorization not later than January 1, 1989, or the expiration of three years after the date of submission of the application, whichever occurs later. Section 302(a)(5)(B) required that contracts between DOE and utilities for payments to the Waste Fund provide that DOE will begin disposing of spent fuel or high-level waste by January 31, 1998.

In little more than a year after enactment, the schedule established by the NWPA began proving to be optimistic. In the reference schedule for the repository presented in the April 1984 Draft Mission Plan, for example, DOE showed a slip from January 1989 to August 1993 for the decision on construction authorization.

In the 1984 Waste Confidence Decision, the Commission recognized the possibility of delay in repository availability beyond 1998, and did not define its task as finding confidence that a repository would be available by the 1998 milestone in the NWPA. The Commission focused instead on the question of whether a repository would be available by the years 2007-2009, the date cited in the court remand as the expiration of the OIs for the Vermont Yankee and Prairie Island reactors. The NRC believed that the NWPA increased the chances for repository availability within the first few years of the twenty-first century, by specifying the means for resolving the institutional and technical issues most likely to delay repository completion, by establishing the process for compliance with NEPA, and by setting requirements for Federal agencies to cooperate with DOE in meeting program milestones. Finding that no fundamental technical breakthroughs were necessary for the repository program, the Commission predicted that "...selection and characterization of suitable sites and construction of repositories will be accomplished within the general time frame established by the Act [1989] or within a few years thereafter."

In January 1987, DOE issued a Draft Mission Plan Amendment to apprise Congress of significant developments

and proposed changes in the repository program. In the Draft Amendment, DOE announced a five-year delay in its schedule for repository availability from the first quarter of 1998 to the first quarter of 2003. DOE's reasons for the delay included the need for more time for consultation and interaction with States and Tribes, the requirement in DOE's 1987 budget that funds not be used for drilling exploratory shafts in 1987, and the need for more information than previously planned for site selection and the license application. The 1987 Draft Mission Plan Amendment set the second quarter of 1988 as the new date for exploratory shaft construction at the Yucca Mountain site. When the final 1987 Mission Plan Amendment was submitted to Congress in June 1987, the schedule for shaft sinking at the Yucca Mountain site had slipped six months to the fourth quarter of 1988. Congress did not take action to approve the June 1987 Mission Plan Amendment as DOE had requested.

On December 22, 1987, the NWPA was enacted. The NWPA had its major impact on the repository program in suspending site characterization activities at the Hanford and Deaf Smith County sites and authorizing DOE to characterize the Yucca Mountain site for development of the first repository.

DOE subsequently issued the Draft 1988 Mission Plan Amendment in June 1988, to apprise Congress of its plans for implementing the provisions of the NWPA. In the Draft 1988 Mission Plan Amendment, DOE's schedule for shaft sinking at Yucca Mountain had slipped another six months to the second quarter of 1989. Since the NRC published the Proposed Waste Confidence Review (54 FR 39767) for comment, the schedule for shaft sinking has been changed from November 1989 to November 1992. Issues requiring DOE attention before site characterization can begin have been identified, and it is possible that additional issues affecting DOE's readiness will come to light. However, DOE has made progress in completing QA plans since September 1989, and it is reasonable to expect that study plans and technical procedures needed for surface-based testing will be ready in time for testing to begin by January 1991.

Heretofore, the repository schedule has always been aggressive and highly success-oriented. In comments on the Draft 1988 Mission Plan Amendment, the Commission noted that the schedule has not allowed adequately for contingencies, and that, given the compression in the schedule for near-

term program milestones, DOE had not shown how it would be able to meet the 2003 milestone for repository operation. The revised schedule announced in the November 1989 Reassessment Report includes a new reference schedule for the restructured repository, MRS, and transportation programs. Under the restructured program, the schedule for submittal of a construction authorization application to NRC has been extended from 1995 to 2001, and the schedule for repository operation at Yucca Mountain, if that site is found to be suitable, is 2010. DOE believes that this reference schedule is the first repository program schedule since passage of the NWPA that is based on a "realistic assessment of activity duration and past experience." The new schedule allows more time for scientific investigations than earlier schedules. NRC believes that the restructured program has been responsive to NRC concerns that the quality and completeness of site investigations were being compromised in order to satisfy unrealistic schedule requirements.

Another potential source of delay in repository availability may arise from NRC regulations. Given the revised schedule, however, the NRC does not believe this is likely. The Commission believes that current NRC rules are fully adequate to permit DOE to proceed to develop and submit a repository license application, but further clarification of these rules is desirable to reduce the time needed to conduct the licensing proceeding itself. In order to meet the three-year schedule provided in the NWPA for a Commission decision on repository construction authorization, the NRC staff has undertaken to refine its regulatory framework on a schedule that would permit DOE to prepare and submit an application for repository construction authorization under its current schedule. The Commission fully intends to avoid delaying DOE's program, while working to reduce the uncertainties in NRC regulatory requirements that could become contentions in the licensing proceeding. Even if there are any delays resulting from a need for DOE to accommodate more specific regulatory requirements in its site characterization or waste package development programs, the Commission is confident that the time savings in the licensing proceeding will more than compensate for them.

In view of the delays in exploratory shaft excavation since the 2003 date for repository availability was set, the Commission believed it was optimistic to expect that Phase 1 of repository operations would be able to begin by

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2003. As DOE's schedule for repository availability has slipped a year and a half since the date was changed from 1998 to 2003, the earliest date for repository availability would probably be closer to 2005. Given additional delays in shaft sinking and DOE's revised program schedule, NRC believes that 2010 is the earliest date for repository availability at Yucca Mountain. Yet, the Commission recognizes that DOE is committed to improving the schedule where possible without sacrificing quality and completeness of scientific investigations.

An institutional issue that may further affect DOE's schedule is the status of EPA standards for disposal of spent fuel and high-level waste. These standards are required under section 121(a) of the NWPA. Under 10 CFR section 60.112, NRC's overall postclosure system performance objective, the geologic setting shall be selected and the engineered barrier system, which includes the waste package, must be designed to assure that releases of radioactive materials to the accessible environment, following permanent closure, conform to EPA's standards. 40 CFR part 191, the EPA standards, first became effective in November 1985. In July 1987, the U.S. Court of Appeals for the First Circuit vacated and remanded to EPA for further proceedings subpart B of the high-level radioactive waste disposal standards. As noted under the aforementioned I.A.1., the standards have not been reissued.

A significant modification in the reissued EPA standard may affect the schedule for completing the design of the waste package and engineered barrier to the extent that design testing is planned to demonstrate compliance with the standards. DOE's current site characterization plans for demonstrating compliance with 40 CFR part 191 are based on the standards as promulgated in 1985. DOE is proceeding to carry out its testing program developed for the original EPA standards. DOE has stated that if the EPA standards are changed significantly when they are reissued, DOE will reevaluate the adequacy of its testing program.

The Commission believes that DOE's approach is reasonable. Much of the information required to demonstrate compliance with the EPA standards is expected to remain the same regardless of the numerical level at which each standard is set. Considering the importance of developing the repository for waste disposal as early as safely

practicable, it would be inappropriate for DOE to suspend work on development of engineered barriers pending reissuance of the standards, unless EPA had given clear indications of major changes in them.

Another possibility is that, regardless of any changes in the repromulgated EPA standards, they will be litigated in Federal court. Even if this proves to be the case, however, the Commission believes that any such litigation will still permit EPA to promulgate final standards well within the time needed to enable DOE to begin repository operations at any site within the first quarter of the twenty-first century.

Given the current DOE program schedule, and assuming that the QA program can be qualified and surface-based testing begun within the next year, the Commission finds that although it is not impossible that a repository at Yucca Mountain will be available by 2007-2009, it is more likely that the earliest date for a repository there is 2010. If DOE determines that the Yucca Mountain site is unsuitable, and if DOE makes this determination by the year 2000, the NRC believes that a repository at another site could be available within the first quarter of the next century. The Commission will reevaluate these dates during the next scheduled Waste Confidence Review in 1999.

II.B. Relevant Issues That Have Arisen since the Commission's Original Decision

II.B.1. NRC stated in 9-14-87 correspondence to Sen. Breaux on pending nuclear waste legislation that under a program of single site characterization, "...there may be a greater potential for delay of ultimate operation of a repository than there is under the current regime where three sites will undergo at-depth characterization before a site is selected." To what extent does the NWPA raise uncertainty about the identification of a technically acceptable site and potential delay in repository availability by limiting site characterization to a single candidate site (Yucca Mt.) and by raising the possibility that a negotiated agreement might influence repository site selection? Does this uncertainty affect confidence in the availability of a repository by 2007-2009?

In providing comments to Congress on proposed amendments to the NWPA, NRC took the position that simultaneous site characterization of three sites, as required by the NWPA, was not

necessary to protect public health and safety. NRC further stated that the adequacy of a site for construction authorization would ultimately be determined in a licensing proceeding, and that NRC would only license a site that satisfied NRC licensing requirements. As described next, the Commission believes that the NWPA contains numerous provisions to ensure that a technically acceptable site will be identified.

The NWPA does not reduce the scope of site characterization activities that DOE is authorized to undertake. The Amendments Act establishes a Nuclear Waste Technical Review Board composed of individuals recommended by the National Academy of Sciences and appointed by the President to evaluate the scientific validity of DOE activities, including site characterization activities, and to report its findings at least semiannually to Congress and DOE. The Amendments Act also provides funding for technical assistance to States, tribes, and affected units of local government. Finally, section 160(l) of the NWPA provides that "Nothing in this Act shall be construed to amend or otherwise detract from the licensing requirements of the NRC established in Title II of the Energy Reorganization Act of 1974 [42 U.S.C. 5841 et seq.]." In providing for these reviews and in reaffirming NRC's licensing authority, the NWPA ensures that a candidate site for a repository must satisfy all NRC requirements and criteria for disposal of high-level radioactive wastes in licensed geologic repositories.

Section 402 of the NWPA establishes the Office of the Nuclear Waste Negotiator. The duty of the Negotiator is to attempt to find a State or tribe willing to host a repository or MRS at a technically qualified site. The Negotiator may solicit comments from NRC, or any other Federal agency, on the suitability of any potential site for site characterization. Section 403(d)(4) strengthens the Commission's confidence that a technically acceptable site will be identified by providing that DOE may construct a repository at a negotiated site only if authorized by NRC. Given these safeguards on selection of a technically acceptable site, the Commission does not consider that the possibility of a negotiated agreement reduces the likelihood of finding a technically qualified site.

The Commission raised the concern as early as April 1987 that under a program of single-site characterization, there could be considerable delay while

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characterization was completed at another site or slate of sites if the initially chosen site was found inadequate. By terminating site characterization activities at alternative sites to the Yucca Mountain site, the NWPAA has had the effect of increasing the potential for delay in repository availability if the Yucca Mountain site proves unsuitable. The provision in the NWPAA for a Negotiator could reduce the uncertainty and associated delay in restarting the repository program by offering an alternate to the Yucca Mountain site; but at the time of this writing, a Negotiator has not been appointed.

It should be noted here that the repository program redirection under the NWPAA does not, *per se*, have a significant impact on the Commission's assurance of repository availability by 2007-2009, the relevant dates in the original Waste Confidence Proceeding, or on availability by 2010, DOE's current date. The Commission's reservations about affirming this timeframe derive from other considerations, including delays in sinking shafts and the potential for other delays in meeting program milestones, that would have arisen without the NWPAA.

The Amendments Act does, however, effectively make it necessary that Yucca Mountain be found suitable if the 2007-2009 or 2010 timeframe is to be met; this target period would almost certainly be unachievable if DOE had to begin screening to characterize and license another site. Thus, confidence in repository availability in this period would imply confidence in the suitability of Yucca Mountain. The Commission does not want its findings here to constrain in any way its regulatory discretion in a licensing proceeding. Therefore, the Commission declines to reaffirm the 2007-2009 timeframe in the original decision or to affirm the current 2010 date for repository operation.

II.B.2. In the Draft 1988 Mission Plan Amendment, DOE stated that "...the

data indicate that the Yucca Mountain site has the potential capacity to accept at least 70,000 MTHM [metric tons heavy metal equivalent] of waste, but only after site characterization will it be possible to determine the total quantity of waste that could be accommodated at this site."

a. Do the issues of limited spent fuel capacity at Yucca Mountain, indefinite

suspension of the second repository program, and the likelihood that no more than one repository will be available by 2007-2009 undermine the NRC's 1984 assurance that "sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high level radioactive waste and spent fuel originating in such reactor and generated up to that time?"

b. Is there sufficient uncertainty in total spent fuel projections (e.g., from extension-of-life license amendments, renewal of operating licenses for an additional 20 to 30 years, or a new generation of reactor designs) that this Waste Confidence review should consider the institutional uncertainties arising from having to restart a second repository program?

II.B.2.a. Although it will not be possible to determine whether Yucca Mountain can accommodate 70,000 MTHM or more of spent fuel until after site characterization, the Commission does not believe that the question of repository capacity at the Yucca Mountain site should be a major factor in the analysis of Finding 2. This is because it cannot be assumed that Yucca Mountain will ultimately undergo development as a repository. The generic issue of repository capacity does add to the potential need for more than one repository, however.

As noted earlier, the NWPAA established deadlines for major milestones in the development of the first and the second repository programs. The Act also required NRC to issue a final decision on the construction authorization application by January 1, 1989 for the first repository, and January 1, 1992 for the second (or within three years of the date of submission of the applications, whichever occurred later). The July 1984 Draft DOE Mission Plan set January 1998 and October 2004 as the dates for commencement of waste emplacement in the first and second repositories, assuming that Congressional authorization was obtained to construct the second repository.

Thus, at the time the 1984 Waste Confidence Decision was issued, DOE was authorized and directed to carry out two repository programs under a schedule to make both facilities operational by 2007-2009. DOE and NRC were also working under the constraint, still in force under the NWPAA as amended, that no more than 70,000 MTHM may be emplaced in the first repository before the second is in

operation. Because DOE estimated at the time that commercial U.S. nuclear power plants with operating licenses or construction permits would discharge a total 160,000 MTHM of spent fuel, it appeared that at least two repositories would be needed.

In the 1984 Waste Confidence Decision, reactors were assumed to have a 40-year operating lifetime, and because the earliest licenses were issued in 1959 and the early 1960's, the oldest plants' licenses were due to expire as early as 1999 and 2000, as discussed in more detail below. Although it was expected that at least one repository would be available by this time, there was also a limit as to how quickly spent fuel could be accepted by the repository. DOE had estimated that waste acceptance rates of 3400 MTHM per year could be achieved after the completion of Phase 2 of the first repository. This rate could essentially double if two repositories were in operation. At 6000 MTHM/year, it was estimated that all the anticipated spent fuel could be emplaced in the two repositories by about the year 2026. This was the basis for the Commission's position that sufficient repository capacity would be available within 30 years beyond expiration of any reactor OL to dispose of existing commercial high level waste and spent fuel originating in such reactor and generated up to that time.

In May 1986, however, DOE announced an indefinite postponement of the second repository program. The reasons for the postponement included decreasing forecasts of spent fuel discharges, as well as estimates that a second repository would not be needed as soon as originally supposed. With enactment of the NWPAA in December 1987, DOE was required to terminate all site-specific activities with respect to a second repository unless such activities were specifically authorized and funded by Congress. The NWPAA required DOE to report to Congress on the need for a second repository on or after January 1, 2007, but not later than January 1, 2010.

Current DOE spent fuel projections, based on the assumption of no new reactor orders, call for 87,000 MTHM to have been generated by the year 2036, including approximately 9000 MTHM of defense high-level waste. With the likelihood that there will be reactor lifetime extensions and renewals, however, the no-new-orders case probably underestimates total spent fuel discharges. Also, the NWPAA did not change the requirement that no more

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than 70,000 MTHM could be emplaced in the first repository before operation of the second. It therefore appears likely that two repositories will be needed to dispose of all the spent fuel and high-level waste from the current generation of reactors, unless Congress provides statutory relief from the 70,000 MTHM limit, and the first site has adequate capacity to hold all of the spent fuel and high-level waste generated. The Commission believes that if the need for an additional repository is established, Congress will provide the needed institutional support and funding, as it has for the first repository.

For all but a few licensed nuclear power reactors, OLs will not expire until some time in the first three decades of the twenty-first century. Several utilities are currently planning to have their OLs renewed for ten to 30 years beyond the original license expiration. At these reactors, currently available spent fuel storage alternatives effectively remove storage capacity as a potential restriction for safe operations. For these reasons, a repository is not needed by 2007-2009 to provide disposal capacity within 30 years beyond expiration of most OLs. If work is begun on the second repository program in 2010, the repository could be available by 2035, according to DOE's estimate of 25 years for the time it will take to carry out a program for the second repository. Two repositories available in approximately 2025 and 2035, each with acceptance rates of 3400 MTHM/year within several years after commencement of operations, would provide assurance that sufficient repository capacity will be available within 30 years of OL expiration for reactors to dispose of the spent fuel generated at their sites up to that time.

There are several reactors, however, whose OLs have already expired or are due to expire within the next few years, and which are now licensed or will be licensed only to possess their spent fuel. If a repository is not available until about 2025, these reactors may be exceptions to the second part of the Commission's 1984 Finding 2, which was that sufficient repository capacity will be available within 30 years beyond the expiration of any reactor OL to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

The basis for this second part of Finding 2 has two components: (1) a technical or hardware component; and (2) an institutional component. The technical component relates to the reliability of storage hardware and engineered structures to provide for the

safe storage of spent fuel. An example would be the ability of spent fuel assemblies to withstand corrosion within spent fuel storage pools, or the ability of concrete structures to maintain their integrity over long periods. In the 1984 Decision, the Commission found confidence that available technology could in effect provide for safe storage of spent fuel for at least 70 years.

The Commission's use of the expression "30 years beyond expiration of any reactor operating license" in the 1984 Finding was based on the understanding that the license expiration date referred to the scheduled expiration date at the time the license was issued. It was also based on the understanding that, in order to refuel the reactor, some spent fuel would be discharged from the reactor within twelve to eighteen months after the start of full power operation.

Thus, the Commission understood that, depending on the date of the first reactor outage for refueling, some spent fuel would be stored at the reactor site for most of the 40-year term of the typical OL. In finding that spent fuel could be safely stored at any reactor site for at least 30 years after expiration of the OL for that reactor, the Commission indicated its expectation that the total duration of spent fuel storage at any reactor would be about 70 years.

Taking the earliest licensed power reactor, the Dresden 1 facility licensed in 1959, and adding the full 40-year operating license duration for a scheduled license expiration in the year 1999, the Commission's finding would therefore entail removal of all spent fuel from that reactor to a repository within the succeeding 30 years, or by 2029. Even if a repository were not available until the end of the first quarter of the twenty-first century, DOE would have at least four years to ship the reactor's 683 spent fuel assemblies, totalling 70 metric tons initial heavy metal (MTHM), from Dresden 1 without exceeding the Commission's 30-year estimate of the maximum time it would take to dispose of the spent fuel generated in that reactor up to the time its OL expired. (MTHM is a measure of the mass of the uranium in the fuel (or uranium and plutonium if it is a mixed oxide fuel) at the time the fuel is placed in the reactor for irradiation.)

Considering the experience from the 1984 and 1985 campaigns to return spent fuel from the defunct West Valley reprocessing facility to the reactors of origin, 70 metric tons of BWR spent fuel can easily be shipped within four years. The first campaign, involving truck

shipments of 20 metric tons from West Valley, NY, to Dresden 1 in Morris, IL, took eleven months. The second, involving truck shipments of 43 tons from West Valley to the Oyster Creek reactor in Toms River, NJ, took six months. (See *Case Histories of West Valley Spent Fuel Shipments*, Final Report, NUREG/CR-4847 WPR-86(6811)-1, p. 2-2.) This estimate assumes, moreover, that no new transportation casks, designed to ship larger quantities of older, cooler spent fuel, for example, would be available by 2025.

The institutional part of the question concerning the availability of sufficient repository capacity required the Commission to make a finding as to whether spent fuel in at-reactor storage would be safely maintained after the expiration of the facility OL. This question related to the financial and managerial capability for continued safe storage and monitoring of spent fuel, rather than to the capability of the hardware involved. The Commission determined, in Finding 3 of its 1984 Decision, that spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure safe disposal, which was expected under Finding 2 to be about 30 years after the expiration of any reactor OL. (See discussion of Finding 3 below for additional discussion of the institutional aspects of spent fuel storage pending the availability of sufficient disposal capacity.)

The availability of a repository within the first quarter of the twenty-first century holds no significant adverse implications for the Commission's institutional concern that there be an organization with adequate will and wherewithal to provide continued long-term storage after reactor operation. This could be a concern if a significant number of reactors with significant quantities of spent fuel onsite were to discontinue operations indefinitely between now and 1995, and the utility-owners of these reactors did not appear to have the resources to manage them safely for up to 30 years pending the assumed availability of a repository in 2025.

No such development is likely. No licenses for currently operating commercial nuclear reactors are scheduled to expire until the year 2000, and most such licenses will expire during the first two decades after 2006. (See *Nuclear Regulatory Commission 1989 Information Digest*, NUREG-1350, Vol. 1, p. 33.) The availability of the first repository by 2025, and of a second repository within one or two decades

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thereafter, would provide adequate disposal capacity for timely removal of the spent fuel generated at these reactors.

There are several licensees, however, whose authority to operate their commercial reactors has already been terminated. These are Indian Point 1, Dresden 1, Humboldt Bay, and Lacrosse. They are also the only licensed power reactors that are retired with spent fuel being stored onsite. Assuming conservatively that a repository does not become operational until 2025, it appears likely that spent fuel will remain at these sites for more than 30 years beyond the time their reactors were indefinitely shut down, at which point their operating licenses could be considered to have effectively expired, although they will continue to hold a possession license for the storage of the spent fuel.

In considering the means and motivation of the owner of an indefinitely retired reactor to provide safe long-term storage, the Commission believes it is useful to distinguish between the owner with only one reactor, and the owner of a reactor at a multi-unit site or an owner with operating reactors at other sites. In the case of a retired reactor at a multi-unit site, the owner would have a clear need to maintain the safety of storage at the retired reactor sufficiently to permit continued generation at the site. If the owner of the retired reactor also owned other reactors at other sites, the spent fuel at the retired reactor could be transferred, if necessary, to the storage facilities of other units still under active management. Of the four reactors just cited, Indian Point 1 and Dresden 1 fit this description, and the sibling reactors at their sites are operating under licenses that do not expire until well beyond the year 2000—that is, well within the post-OL period during which the Commission has found that spent fuel could be safely stored pending the availability of a repository.

For the Lacrosse and Humboldt Bay reactors, the Commission is confident that, even if a repository is not available within 30 years following their retirement, the overall safety and environmental acceptability of extended spent fuel storage will also be maintained for these exceptional cases. Because there will still be an NRC possession license for the spent fuel at these facilities, the Commission will retain ample regulatory authority to require any measures, such as removal of the spent fuel remaining in storage pools to passive dry storage casks, that might become necessary until the time

that DOE assumes title to the spent fuel under contracts pursuant to the NWPA. It should also be borne in mind that Humboldt Bay and Lacrosse are both small early reactors, and their combined spent fuel inventory totals 67 metric tons of initial heavy metal. (See *Spent Fuel Storage Requirements* (DOE/RL 88-34) October 1988, Table A.3b., pp. A.15-A.17.) If for any reason not now foreseen, this spent fuel can no longer be managed by the owners of these reactors, and DOE must assume responsibility for its management earlier than currently planned, this quantity of spent fuel is well within the capability of DOE to manage onsite or offsite with available technology.

Nor does the Commission see a significant safety or environmental problem with premature retirements of additional reactors. In the Commission's original Waste Confidence Decision, it found reasonable assurance that spent fuel would have to spend no more than 30 years in post-operational storage pending the availability of a repository. For a repository conservatively assumed to be available in 2025, this expected 30-year maximum storage duration remains valid for most reactors, and would be true for all reactors that were prematurely retired after 1995. Based on the past history of premature shutdowns, the Commission has reason to believe that their likely incidence during the next six years will be small as a proportion of total reactor-years of operation.

Historically, 14 of the 125 power reactors that have operated in the U.S. over the past 30 years have been retired before the expiration of their operating licenses. These early retirements included many low-power developmental reactors, which may make the ratio of 14 to 125 disproportionately high as a basis for projecting future premature shutdowns.

The Commission is aware of currently operating reactors that may be retired before the expiration of their OLs, including: the recently-licensed Shoreham reactor, which has generated very little spent fuel; the Fort St. Vrain high-temperature gas-cooled reactor, which its owner plans to decommission; and the Rancho Seco reactor, which has operated for the past 12 years and may or may not be retired. Assuming that these and perhaps a few more reactors do retire in the next several years, their total spent fuel storage requirements would not impose an unacceptable safety or environmental problem, even in the unlikely event that all these reactors' owners were rendered financially or otherwise unable to

provide adequate care, and DOE were required to assume custody earlier than currently envisioned under the NWPA.

Licensed non-power research reactors provide an even more manageable case. DOE owns the fuel for almost all of these reactors, many of which have been designed with lifetime cores that do not require periodic refueling. For those reactors that do discharge spent fuel, DOE accepts it for storage or reprocessing, and not more than an estimated 50 kilograms of such spent fuel are generated annually.

Thus, given these worst-case projections, which are not expectations but bounding estimates, the Commission finds that a delay in repository availability to 2025 will not result in significant safety or environmental impacts due to extended post-operational spent fuel storage. To put it another way, the Commission is confident that, even if a repository were not available within 30 years after the effective expiration of the OLs for both currently retired reactors and potential future reactor retirements through 1995, the overall safety and environmental impacts of extended spent fuel storage would be insignificant.

II.B.2.b. Although it is clear that there is uncertainty in projections of total future spent fuel discharges, it is not clear that the institutional uncertainties arising from having to restart a second repository program should be considered in detail in the current Waste Confidence Decision review.

License renewals would have the effect of increasing requirements for spent fuel storage. The Commission understands that some utilities are currently planning to seek renewals for 30 years. Assuming for the sake of establishing a conservative upper bound that the Commission does grant 30-year license renewals, the total operating life of some reactors would be 70 years, so that the spent fuel initially generated in them would have to be stored for about 100 years if a repository were not available until 30 years after the expiration of their last OLs.

Even under the conservative bounding assumption of 30-year license renewals for all reactors, however, if a repository were available within the first quarter of the twenty-first century, the oldest spent fuel could be shipped off the sites of all currently operating reactors well before the spent fuel initially generated in them reached the age of 100 years. Thus, a second repository, or additional capacity at the first, would be needed only to accommodate the additional quantity of spent fuel generated during the later years of these reactors'

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operating lives. The availability of a second repository would permit spent fuel to be shipped offsite well within 30 years after expiration of these reactors' OLs. The same would be true of the spent fuel discharged from any new generation of reactor designs.

In sum, although some uncertainty in total spent fuel projections does arise from such developments as utilities' planning renewal of OLs for an additional 20 to 30 years, the Commission believes that this Waste Confidence review need not at this time consider the institutional uncertainties arising from having to restart a second repository program. Even if work on the second repository program is not begun until 2010 as contemplated under current law, there is sufficient assurance that a second repository will be available in a timeframe that would not constrain the removal of spent fuel from any reactor within 30 years of its licensed life for operation.

II.B.3. Are early slippages in the DOE repository program milestones

significant enough to affect the Commission's confidence that a repository will be available when needed for health and safety reasons?

The 2007-2009 timeframe imposed on the Commission by the May 23, 1979 remand by the Court of Appeals was based on the scheduled expiration of the OLs for the Vermont Yankee and Prairie Island nuclear reactors. The specific issues remanded to the Commission were: (1) whether there is reasonable assurance that an offsite storage solution will be available by the years 2007-2009 (the expiration of the plants' operating licenses); and, if not, (2) whether there is reasonable assurance that the fuel can be stored safely at the sites beyond those dates.

There was no finding by the Court that public health and safety required offsite storage or disposal by 2007-2009. In directing the Commission to address the safety of at-reactor storage beyond 2007-2009, the Court recognized the possibility that an offsite storage or disposal facility might not be available by then.

The Commission has not identified a date by which a repository must be available for health and safety reasons. Taking into account institutional requirements for spent fuel storage, the Commission found, under Finding 3 in the 1984 Waste Confidence Decision, that spent fuel would be safely managed until sufficient repository capacity is available. The Commission also found, however, that in effect, under the second part of Finding 2, safe management would not need to continue for more

than 30 years beyond expiration of any reactor's OL, because sufficient repository capacity was expected to become available within those 30 years. Considering that spent fuel would not have to be stored more than 30 years after any reactor's 40-year OL expiration, and taking into account the technical requirements for such storage, the Commission went on to determine under Finding 4 that, in effect, spent fuel could be safely stored for at least 70 years after discharge from a reactor. Thus, the Commission's 1984 Decision did not establish a time when sufficient repository capacity would be required; it established a minimum period during which storage would continue to be safe and environmentally acceptable pending the expected availability of sufficient repository capacity.

Bearing in mind that reactor facilities were originally designed and OLs issued for a licensed life for operation of 40 years, the Commission is proposing elsewhere in this **Federal Register** notice a clarifying revision of Finding 4 to say that spent fuel can be safely stored at a reactor for at least 30 years after the "licensed life for operation" of that reactor. Implicitly, the proposed use of the phrase "licensed life for operation" clarifies that the Commission found in 1984 that NRC licensing requirements for reactor facility design, construction, and operation provide reasonable assurance that spent fuel can be stored safely and without significant environmental impacts for at least the first 40 years of the reactor's life. The Commission's proposed finding also implies that, barring any significant and pertinent unexpected developments, neither technical nor institutional constraints would adversely affect this assurance for at least another 30 years after that first 40 years. Another implication of this revised finding is that, where a utility is able to meet NRC requirements to extend that reactor's operating lifetime by license renewal, spent fuel storage for at least 30 years beyond the end of the period of extended life will also be safe and without significant environmental impacts.

In assessing the effect of early slippages in DOE repository program milestones, therefore, the most important consideration is not the earliest date that an operating license actually expired, but the earliest date that an OL was issued. The earliest OL to be issued was for Dresden 1 in 1959, followed by a number of reactors licensed for operation in 1962. The OLs for all of the 111 power reactors now licensed to operate are currently scheduled to expire sometime within the

first three decades of the twenty-first century, which is also the period in which their currently licensed life for operation would end. (See *Nuclear Regulatory Commission 1989 Information Digest*, NUREG-1350, Vol. 1, p. 33.) Thus, conservatively assuming here that there will be no license renewals, the earliest timeframe when a repository might be needed to dispose of spent fuel from the majority of reactors is 2029-2050.

As proposed in the first part of Finding 2, the Commission has reasonable assurance that a repository will be available within the first quarter of the twenty-first century. Even if a repository were not available until 2025, this would be several years before the beginning of the earliest timeframe within which, based on an assumed 30-year storage after an assumed 40-year licensed life of reactor operation, a repository might be needed for spent fuel disposal. Thus, early slippages in DOE's program milestones do not affect the Commission's confidence that a repository will be available within that timeframe.

II.B.4. NRC has stated that the 3- to 4-year license application review schedule is optimistic, and that for NRC to meet this schedule, DOE must submit a complete and high-quality license application. In the September 16, 1988 NRC comments to DOE on the Draft 1988 Mission Plan Amendment, the Commission requested that DOE acknowledge its commitment to develop this complete and high-quality application, "even if this would result in longer times to collect the necessary information and subsequent delays in submitting the license application."

Will NRC's emphasis on the completeness and quality of the license application have a significant effect on the timing of the submittal of the license application and subsequent licensing proceeding to grant construction authorization in time for repository availability by 2007-2009?

As the NRC indicated to DOE in NRC's October 25, 1985 comments on the draft PDS, the three-year statutory schedule for the NRC licensing proceeding on the application for construction authorization is optimistic. The Commission has sought ways to improve the prospects for meeting this schedule, for example by developing the LSS for expedited document discovery during the licensing proceeding.

In the same correspondence on the PDS, NRC also stated that the adequacy of the three-year review period depends

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on DOE's submittal of a complete and high-quality application. A license application supported by inadequate data may lead to findings during the licensing proceeding that the results of certain tests cannot be admitted as part of the license application. If it is not possible to repeat the tests in question, NRC may have no alternative but to deny the application—with a consequent loss of program momentum and considerable financial cost.

In the November 1989 Reassessment Report, DOE announced extensions in all major repository program milestones. The current target date for repository availability is 2010. In a speech before the 1989 Nuclear Energy Forum, W. Henson Moore, Deputy Secretary of Energy, stated that a permanent repository at Yucca Mountain could not be operational before 2010, under optimum circumstances. The 2010 at-the-earliest timeframe falls outside of the 2007-2009 timeframe for an "offsite storage solution" in the 1979 Court remand which precipitated the NRC's Waste Confidence Proceeding. In the Reassessment Report, DOE noted that in developing its current schedule, certain activities, one of which was NRC's review of the license application, were outside of DOE's control. However, DOE also stated that it would continue its ongoing interactions with NRC and EPA "to reduce the number of unresolved issues remaining at the time of licensing, which should enhance confidence that the license application can be reviewed in three years, as called for in the Nuclear Waste Policy Act." The NRC does not believe that it is likely that NRC's emphasis on completeness and quality of the license application will contribute to substantial delays in submitting the license application and in the licensing proceeding that would delay repository availability much beyond 2010 at the Yucca Mountain site.

In any case, the Commission remains convinced that the benefits to the repository program of submitting a high-quality license application would outweigh the cost of delay in preparing the application. NRC has always placed great emphasis on early resolution of potential licensing issues in the interest of expeditious review of the license application and timely repository availability. It is in the same spirit of timely repository operation that the Commission is urging greater attention to quality than to meeting the schedule for submittal of the license application. NRC believes that a complete and high-quality license application offers the best available assurance that timely

repository licensing and operation can be achieved.

In addition to expediting the review of the application, a high-quality license application and site characterization program should enhance overall confidence that any site granted a construction authorization will prove to be reliable during the period of performance confirmation. It will also increase public confidence that the program is being carried out in a thorough and technically sound manner.

II.C. Conclusion on Finding 2

In reexamining the technical and institutional uncertainties surrounding the timely development of a geologic repository since the 1984 Waste Confidence Decision, the Commission has been led to question the conservatism of its expectation that a repository would be available by 2007-2009.

At the time of the 1984 Decision, the Commission said that timely attainment of a repository did not require DOE to adhere strictly to the milestones set out in the NWPA, and there would be delays in some milestones. It did not appear to the Commission at the time that delays of a year or so in meeting any of the milestones would delay the date of repository availability by more than a few years beyond the 1998 deadline specified in the Act.

Since then, however, several developments have made it apparent that delays of more than a few years are to be the norm rather than the exception in the early years of this program. There has been a twelve-year slip in DOE's estimate of repository availability from 1998 to 2010, and DOE has been unable to meet such near-term repository program milestones as excavation of the exploratory shaft and the start of in-situ testing. There remains the possibility that potential repository availability at the Yucca Mountain site will be further delayed due to unforeseen problems during site characterization.

In predicting the timing of repository availability, the suitability of Yucca Mountain should not be assumed. Yucca Mountain is now the only candidate site available; the NWPA required that DOE terminate site characterization activities at all sites other than the Yucca Mountain site. In effect, the 2007-09 schedule for repository availability in the original Waste Confidence Decision could have been met only if Yucca Mountain survived the repository development process as a licensed site without major delays in site characterization and licensing. If this site were found to be unlicenseable or otherwise unsuitable, characterization

would have to begin at another site or suite of sites, with consequent further delay in repository availability. The final decision on the suitability of the site to proceed to licensing and repository development will rest with DOE, but the position of the NRC staff will figure in that decision. The staff will not be able to make a recommendation to a licensing board to authorize repository construction at Yucca Mountain until all site characterization activities have been completed. DOE might thus be unable for several more years to determine whether there will in fact have to be a delay to find and characterize another site.

Another reason the Commission is unwilling to assume the suitability of Yucca Mountain is that NRC must be mindful of preserving all its regulatory options—including a recommendation of license application denial—to assure adequate protection of public health and safety from radiological risk. In our view, it is essential to dispel the notion that for scheduler reasons there is no alternative to the currently preferred site. This view is consistent with past Commission statements that the quality of DOE's preparations for a license application should take precedence over timeliness where the two conflict. It is also consistent with the view that because we are making predictions about completion dates for a unique and complex enterprise at least some 20 years hence, it is more reasonable to express the timescale for completion in decades rather than years.

In order to obtain a conservative upper bound for the timing of repository availability, the Commission has made the assumption that the Yucca Mountain site will be found to be unsuitable. If DOE were authorized to initiate site screening for a repository at a different site in the year 2000, the Commission believes it reasonable to expect that a repository would be available by the year 2025. This estimate is based on the DOE position that site screening for a second repository should begin 25 years before the start of waste acceptance.

The consideration of technical and institutional issues presented here has found none that would preclude the availability of a repository within this timeframe. Given DOE's revised schedule, which provides 11 years for site characterization activities instead of six, it is possible that the Yucca Mountain site could be found unsuitable after the year 2000. In this case, DOE would have fewer than 25 years to initiate site screening and develop a repository for availability by 2025. The NRC will evaluate the likelihood of this

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development during the next scheduled review of the Waste Confidence Decision in 1999.

For the second part of its 1984 finding on repository availability, the Commission found reasonable assurance that sufficient repository capacity will be available within 30 years beyond expiration of any reactor OL to dispose of existing commercial high level waste and spent fuel originating in that reactor and generated up to that time. The Commission believes that this finding should also be modified in light of developments since 1984.

When the Commission made this finding, it took into consideration both technical and institutional concerns. The technical concern centered on the ability of the spent fuel and the engineered at-reactor storage facilities to meet the requirements for extended post-operational storage before shipment for disposal. The institutional question concerned whether the utility currently responsible for post-operational at-reactor storage, or some substitute organization, would be able to assure the continued safety of this storage.

The principal new developments since 1984 that bear on these questions are: (1) that dry spent fuel storage technologies have become operational on a commercial scale; and (2) that several utilities are proceeding with plans to seek renewals of their OLs, with appropriate plant upgrading, for an additional period up to 30 years beyond the 40-year term of their current licenses. The accumulation of operating experience with dry-cask storage, a technology requiring little active long-term maintenance, provides additional assurance that both the technical and institutional requirements for extended post-operational spent fuel storage will be met. License renewals, however, would have the effect of increasing requirements for both the quantity and possibly the duration of storage. If the Commission were to grant 30-year license renewals, the total operating life of some reactors could be 70 years, so that the spent fuel initially generated in such reactors would have to be stored for about 100 years, if a repository were not available until 30 years after the expiration of their last OLs. This raises the question as to whether that spent fuel, and the hardware and civil engineering structures for storing it, can continue to meet NRC requirements for an additional 30 years beyond the period the Commission supported in 1984.

For all the reasons cited in the discussion of Finding 4, the Commission believes there is ample technical basis

for confidence that spent fuel can be stored safely and without significant environmental impact at these reactors for at least 100 years. If a repository were available within the first quarter of the twenty-first century, the oldest spent fuel could be shipped off the sites of all currently operating reactors well before the spent fuel initially generated in them reached the age of 100 years.

The need to consider the institutional aspects of storage beyond 30 years after OL expiration was not in evidence in 1984 because the Commission was confident that at least one repository would be available by 2007-2009. On that schedule, waste acceptance of spent fuel from the first reactor whose operating license had expired (Indian Point 1, terminated in 1980) could have begun within 30 years of expiration of that license. If a repository does not prove to be available until 2025, however, it would not be available within 30 years of the time that OLs could be considered effectively to have expired for Indian Point 1 and the three other plants with spent fuel onsite that were retired before the end of their licensed life for reactor operation. The same would be true of any additional reactors prematurely retired between now and 1995, when the 30-year clock starts for the availability of a repository by 2025. Premature shutdowns notwithstanding, the Commission has reasons to be assured that the spent fuel at all of these reactors will be stored safely and without significant environmental impact until sufficient repository capacity becomes available.

Considering first the technical reasons for this assurance, it is important to recognize that each of these reactors and its spent fuel storage installation were originally licensed in part on the strength of the applicant's showing that the systems and components of concern were designed and built to assure safe operation for 40 years under expected normal and transient severe conditions. All of the currently retired reactors have a significant portion of that 40-year expected life remaining, and all have only small quantities of spent fuel onsite in storage installations that were licensed to withstand considerably larger thermal and radiation loadings from much greater quantities of spent fuel. Of the four reactors currently retired with spent fuel onsite, the two with far the longest terms of operation, Lacrosse and Dresden, were operated for 19 and 18 years, respectively.

For the continued safe management of the spent fuel in storage installations at any existing or potential prematurely retired plant, the Commission believes it can reasonably rely on the continued

structural and functional integrity of the plant's engineered storage installations for at least the balance of its originally licensed life as if the OL were still in effect. This is to say that for the purposes of Finding 2, no foreseeable technical constraints have arisen to disturb the Commission's assurance that spent fuel storage at any reactor will remain safe and environmentally acceptable for at least 30 years after its licensed life for operation, regardless of whether its OL has been terminated at an earlier date.

The Commission also sees no insurmountable institutional obstacles to the continued safe management of spent fuel during the remainder of any shutdown reactor's initially licensed life for operation, or for at least 30 years thereafter. Because there will still be an NRC possession license for the spent fuel at any reactor that has indefinitely suspended operations, the Commission will retain ample regulatory authority to require any measures, such as removal of the spent fuel remaining in storage pools to passive dry storage casks, that might appear necessary after an OL expires. Even if a licensed utility were to become insolvent, and responsibility for spent fuel management were transferred to DOE earlier than is currently planned, the Commission has no reason to believe that DOE would be unable to carry out any safety-related measures NRC considers necessary. Thus, in the case of a premature reactor retirement, the Commission has an adequate basis, on both technical and institutional grounds, for reasonable assurance that spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond not only the actual end of that reactor's OL, but the end of its originally licensed life for operation.

In sum, considering developments since 1984 in the repository development program, in the operating performance of U.S. power reactors, and in spent fuel storage technology, the Commission finds that: (1) the overall public health, safety, and environmental impacts of the possible unavailability of a repository by 2007-2009 would be insignificant; and (2) neither 30-year renewals of reactor licenses nor a delay in repository availability to 2025 will result in significant safety or environmental impacts from extended post-operational spent fuel storage.

The Commission finds ample grounds for its proposed revised findings on the expected availability of a repository. The institutional support for the repository program is well-established. A mechanism for funding repository

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program activities is in place, and there is a provision in the NWPA for adjusting, if necessary, the fee paid by utilities into this fund. Congress has continued to provide support for the repository program in setting milestones, delineating responsibilities, establishing advisory bodies, and providing a mechanism for dealing with the concerns of States and affected Indian tribes.

Technical support for extended spent fuel storage has improved since 1984. Considering the growing availability, reasonable cost, and accumulated operating experience with new dry cask spent fuel storage technology since then, the Commission now has even greater assurance that spent fuel can be stored safely and without significant environmental impact for at least 30 years after the expected expiration of any reactor's OL. Where a reactor's OL has been terminated before the expected expiration date, the Commission has an adequate basis to reaffirm what was implicit in its initial concept, namely: that regardless of the actual date when the reactor's operating authority effectively ended, spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond that reactor's licensed life for operation.

There is thus no foreseeable health and safety or environmental requirement that a repository be made available within the 2007-2009 timeframe at issue in the Commission's original proceeding.

Indeed, the Commission sees important NRC mission-related grounds for avoiding any statement that repository operation by 2007-2009 is required. Geologic disposal of high-level radioactive wastes is an unprecedented endeavor. It requires reliable projections of the waste isolation performance of natural and engineered barriers over millennia. After the repository is sealed, retrieval of the emplaced wastes will no longer be practicable, and the commitment of wastes to that site will, by design, be irreversible. In DOE's testing, both in the laboratory and at the candidate repository site, in its development of facility and waste-package designs, and in all other work to demonstrate that NRC requirements will be met for a repository at Yucca Mountain, the Commission believes that the confidence of both NRC and the public depends less on meeting the schedule for repository operation than on meeting safety requirements and doing the job right the first time. Thus, given the Commission's assurance that spent fuel can safely be stored for at

least 100 years if necessary, it appears prudent for all concerned to prepare for the better-understood and more manageable problems of storage for a few more years in order to provide additional time to assure the success of permanent geologic disposal.

This is not to say that the Commission is unsympathetic to the need for timely progress toward an operational repository. It is precisely because NRC is so confident of the national commitment to achieve early repository operation that the Commission believes it no longer need add its weight to the considerable pressures already bearing on the DOE program. There is ample institutional impetus on the part of others, including Congress, the nuclear power industry, State utility rate regulatory bodies, and consumers of nuclear-generated power, toward DOE achievement of scheduled program milestones. With continuing confidence in the technical feasibility of geologic disposal, the Commission has no reason to doubt the institutional commitment to achieve it in a timeframe well before it might become necessary for safety or environmental reasons. Indeed, the Commission believes it advisable not to attempt in this review a more precise NRC estimate of the point at which a repository will be needed for radiological safety or environmental reasons, lest this estimate itself undermine the commitment to earlier achievement of repository operations.

To find reasonable assurance that a repository will be available by 2007-2009, however, is a different and more consequential proposition in the context of this review. In light of the delays the program has encountered since its inception, and the regulatory need to avoid a premature commitment to the Yucca Mountain site, the Commission could not prudently describe a basis for assurance that the previous DOE schedule for repository operation in 2003 would not slip another four to six years under any reasonably foreseeable circumstances. The NRC believes it is more realistic to expect that a repository at the Yucca Mountain site could be available by the year 2010 or a few years thereafter, if the Yucca Mountain site is found to be suitable. This revised estimate, however, could too easily be misinterpreted as an NRC estimate of the time at which continued spent fuel storage at these sites would be unsafe or environmentally significant. The Commission's enhanced confidence in the safety of extended spent fuel storage provides adequate grounds for the view that NRC need not at this time define more precisely the period when, for

reasons related to NRC's mission, a permanent alternative to post-operational spent fuel storage will be needed. The Commission therefore proposes the following revision of its original Finding on when sufficient repository capacity will be available:

The Commission finds reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license)¹ of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

Reaffirmed Finding 3: The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed, in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel.

III.A. Issues Considered in Commission's 1984 Decision on Finding 3

In the Commission's discussion of Finding 3 in its Waste Confidence Decision (49 FR 34658, August 31, 1984), in Section 2.3 >Third Commission Finding,' the Commission stated,

Nuclear power plants whose operating licenses expire after the years 2007-09 will be subject to NRC regulation during the entire period between their initial operation and the availability of a waste repository. The Commission has reasonable assurance that the spent fuel generated by these licensed plants will be managed by the licensees in a safe manner. Compliance with the NRC regulations and any specific license conditions that may be imposed on the licensees will assure adequate protection of the public health and safety. Regulations primarily addressing spent fuel storage include 10 CFR Part 50 for storage at the reactor facility and 10 CFR Part 72 for storage in independent spent fuel storage installations (ISFSIs). Safety and environmental issues involving such storage are addressed in licensing reviews under both Parts 50 and 72, and continued storage operations are audited and inspected by NRC. NRC's experience in more than 80 individual evaluations of the safety of spent fuel storage shows that significant releases of radioactivity from spent fuel under licensed storage conditions are extremely remote.

Some nuclear power plant operating licenses expire before the years 2007-09. For technical, economic or other reasons, other plants may choose, or be forced to terminate operation prior to 2007-09 even though their

¹The parenthetical phrase "which may include the term of a revised or renewed license" has been added to revised Finding 2 to make it consistent with revised Finding 4.

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operating licenses have not expired. For example, the existence of a safety problem for a particular plant could prevent further operation of the plant or could require plant modifications that make continued plant operation uneconomic. The licensee, upon expiration or termination of its license, may be granted (under 10 CFR Part 50 or Part 72) a license to retain custody of the spent fuel for a specified term (until repository capacity is available and the spent fuel can be transferred to DOE under Sec. 123 of the Nuclear Waste Policy Act of 1982) subject to NRC regulations and license conditions needed to assure adequate protection of the public. Alternatively, the owner of the spent fuel, as a last resort, may apply for an interim storage contract with DOE, under Sec. 135(b) of the Act, until not later than 3 years after a repository or monitored retrievable storage facility is available for spent fuel. For the reasons discussed above, the Commission is confident that in every case the spent fuel generated by those plants will be managed safely during the period between license expiration or termination and the availability of a mined waste repository for disposal.

Even if a repository does not become available until 2025, nothing has occurred during the five years since its original Decision to diminish the Commission's confidence that high-level waste and spent fuel will be managed in a safe manner until a repository is available. The same logic just stated continues to apply through the first quarter of the twenty-first century. NRC regulations remain adequate to assure safe storage of spent fuel and radioactive high-level waste at reactors, at independent spent fuel storage installations (ISFSIs), and in an MRS until sufficient repository capacity is available.

10 CFR subsection 72.42(a) provides for renewal of licensed storage at ISFSIs for additional 20-year periods for interim storage, or for additional 40-year periods for monitored retrievable storage of spent fuel and solidified radioactive high-level waste if an MRS facility is constructed, licensed, and operated. This would ensure that spent fuel and solidified high-level waste, if any were to be delivered to an MRS facility, would remain in safe storage under NRC regulation throughout its storage. The Commission has also published for public comment a proposed amendment to part 72 to issue a general license to reactor licensees to use approved spent fuel storage casks at reactor sites. Currently, the Commission is considering the draft final amendment for this rulemaking action. If this amendment is promulgated, no specific part 72 license would be required. Operating license holders would register with NRC to use approved casks on their sites.

Spent fuel may continue to be stored in the reactor spent fuel pool under a part 50 "possession only" license after the reactor has ceased operating. In addition, DOE's policy of disposing of the oldest fuel first, as set forth in its Annual Capacity Report, makes it unlikely that any significant fraction of total spent fuel generated will be stored for longer than the 30 years beyond the expiration of any operating reactor license. This expectation, established in the Commission's original proceeding, continues to be reasonable, even in the event that a repository is not available until some time during the first quarter of the twenty-first century. Even in the case of premature shutdowns, where spent fuel is most likely to remain at a site for 30 years or longer beyond OL expiration (see Finding 2, previously discussed), the Commission has confidence that spent fuel will be safely managed until safe disposal is available.

Until the reactor site has been fully decommissioned, and spent fuel has been transferred from the utility to DOE as required by NRC regulations, the licensee remains responsible to NRC. Furthermore, under 10 CFR subsection 50.54bb, originally issued in final form by the Commission with its 1984 Waste Confidence Decision, a reactor licensee must provide to NRC, five years before expiration of an OL, notice of plans for spent fuel disposition. Accordingly, the Commission concludes that nothing has changed since the enactment of the Nuclear Waste Policy Act of 1982 and the Waste Confidence Decision in August 1984 to diminish the Commission's "...reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available...."

Pursuant to the NWPA, the Commission issued in final form 10 CFR part 53, "Criteria and Procedures for Determining Adequacy of Available Spent Nuclear Fuel Storage Capacity," addressing the determination of need, if any, for DOE interim storage. No applications were received by the June 30, 1989 NWPA deadline incorporated into the Commission's rule, and it seems unlikely that any applications will be made to NRC for interim storage by DOE. Even if NRC had made an exception for a late application, a determination would have to have been made before January 1, 1990 to comply with the NWPA.

III.B. Relevant Issues That Have Arisen since the Commission's Original Decision on Finding 3

Although a DOE facility may not be available to enable the Department to

begin accepting spent fuel in 1998, as currently provided in the contracts under the NWPA, the Commission's confidence in safe storage is unaffected by any potential contractual dispute between DOE and spent fuel generators and owners as to responsibility for spent fuel storage. In the event that DOE does not take title to spent fuel by this date, a licensee under either 10 CFR part 50 or part 72 cannot abandon spent fuel in its possession.

The Commission recognizes that the NWPA limitation of 70,000 MTHM for the first repository will not provide adequate capacity for the total amount of spent fuel projected to be generated by all currently operating licensed reactors. The NWPA effectively places a moratorium on a second repository program until 2007-2010. Either the first repository must be authorized and able to provide expanded capacity sufficient to accommodate the spent fuel generated, or there must be more than one repository. Since Congress specifically provided in the NWPA for a first repository, and required DOE to return for legislative authorization for a second repository, the Commission believes that Congress will continue to provide institutional support for adequate repository capacity.

The Commission's confidence about the availability of repository capacity is not affected by the possibility that some existing reactor licenses might be renewed to permit continued generation of spent fuel at these sites. Because only two reactor licenses are scheduled to expire before 2003, the impact of license renewals (a matter not considered in the Commission's 1984 Decision) will have no significant effect within the first quarter of the twenty-first century on scheduling requirements for a second repository. Renewals may slightly alleviate the need for a second repository in the short term, because spent fuel storage capacity will be expanded for extended storage at these reactor sites. Over the longer term, renewals might increase spent fuel generation well into the latter half of the twenty-first century. Nonetheless, nothing in this situation diminishes the Commission's assurance that safe storage will be made available as needed.

In summary, the Commission finds no basis for changing the Third Finding in its Waste Confidence Decision. The Commission continues to find "...reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is

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available to assure the safe disposal of all high-level waste and spent fuel."

Original Finding 4: The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of that reactor's operating license at that reactor's spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

Revised Finding 4: The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

IV.A. Issues Considered in Commission's 1984 Decision on Finding 4

In the Commission's discussion of Finding 4 in its Waste Confidence Decision (49 FR 34658; August 31, 1984) section 2.4 "Fourth Commission Finding," the Commission said that:

Although the Commission has reasonable assurance that at least one mined geologic repository will be available by the years 2007-09, the Commission also realizes that for various reasons, including insufficient capacity to immediately dispose of all existing spent fuel, spent fuel may be stored in existing or new storage facilities for some periods beyond 2007-09. The Commission believes that this extended storage will not be necessary for any period longer than 30 years beyond the term of an operating license. For this reason, the Commission has addressed on a generic basis in this decision the safety and environmental impacts of extended spent fuel storage at reactor spent fuel basins or at either onsite or offsite spent fuel storage installations. The Commission finds that spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond the expiration of reactor operating licenses. To ensure that spent fuel which remains in storage will be managed properly until transferred to DOE for disposal, the Commission is proposing an amendment to its regulations (10 CFR Part 50). The amendment will require the licensee to notify the Commission, five years prior to expiration of its reactor operating license, how the spent fuel will be managed until disposal.

The Commission's finding is based on the record of this proceeding which indicates that significant releases of radioactivity from spent fuel under licensed storage conditions are highly unlikely. It is also supported by the Commission's experience in conducting more than 80 individual safety evaluations of storage facilities.

The safety of prolonged spent fuel storage can be considered in terms of four major issues: (a) The long-term integrity of spent fuel under water pool storage conditions, (b) structure and component safety for extended facility operation, (c) the safety of dry storage, and (d) potential risks of accidents and acts of sabotage at spent fuel storage facilities.

For reasons discussed above, the Commission arrived at a provisional figure of 70 years or more for storage (i.e., a 40-year reactor OL span, plus 30 years or more).

The 70-year-plus estimate is supported by oral testimony from the nuclear industry to the Commission in the Waste Confidence Proceeding. (See Transcript of Commission Meeting, "In the Matter of: Meeting on Waste Confidence Proceeding," January 11, 1982, Washington, DC, pp. 148-160). This testimony specifically addressed safety issues related to water pool storage of spent fuel and supported the position that spent fuel could be stored for an indefinite period, citing the industry's written submittal to the Commission in the proceeding. (See "The Capability for the Safe Interim Storage of Spent Fuel" (Document 4 of 4), Utility Nuclear Waste Management Group and Edison Electric Institute, July 1980). Some of this material alluded to in the oral testimony was subsequently referenced by the Commission in its discussion of water pool storage issues and its Fourth Finding of reasonable assurance that spent fuel and high level waste "...will be managed in a safe manner." (See 49 FR 34658 at pp. 34681-2, August 31, 1984).

If a reactor with a 40-year initial license were to have that license renewed for another 30 years, the Commission believes that the spent fuel generated at that reactor can be safely stored for at least several decades past the end of the 70-year operating period. Adding to these 70 years the expected 30-year post-OL period during which the Commission believes, under Finding 2, that sufficient repository capacity will be made available for any reactor's spent fuel, the total storage time would be about 100 years.

In making the original Fourth Finding, the Commission did not determine that for technical or regulatory reasons, storage would have to be limited to 70 years. This is apparent from the Commission's use of the words "...for at least 30 years beyond the expiration of that reactor's operating license..."[emphasis added]. Similarly, in using the words "at least" in its revised Finding Four, the Commission is not suggesting 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) represents any technical limitation for

safe and environmentally benign storage. Degradation rates of spent fuel in storage, for example, are slow enough that it is hard to distinguish by degradation alone between spent fuel in storage for less than a decade and spent fuel stored for several decades.

The Commission's revised Finding here is meant to apply both to wet storage in reactor pools and dry storage in engineered facilities outside the reactor containment building. Both dry and wet storage will be discussed in detail next.

Since the original Waste Confidence Decision, which found that material degradation processes in dry storage were well-understood, and that dry-storage systems were simple, passive, and easily maintained, NRC and ISFSI operators have gained experience with dry storage which confirms the Commission's 1984 conclusions. NRC staff safety reviews of topical reports on storage-system designs, the licensing and inspection of storage at two reactor sites, and NRC promulgation of the part 72 amendment for MRS, have significantly increased the agency's understanding of and confidence in dry storage.

Under NWPA Section 218(a), DOE has carried out spent fuel storage research and development as well as demonstration of dry cask storage at its Idaho National Engineering Laboratory. Demonstration has been carried out for metal casks under review or previously reviewed by NRC staff. DOE has also provided support to utilities in dry storage licensing actions (see Godlewski, N.Z., "Spent Fuel Storage--An Update," *Nuclear News*, Vol. 30, No. 3, March 1987, pp.47-52).

Dry storage of spent fuel has become an available option for utilities, with at-reactor dry storage licensed and underway at three sites: the H. B. Robinson Steam Electric Plant, Unit 2, in South Carolina, and the Surry Nuclear Station in Virginia. A license was recently granted for a modular system at Duke Power Company's Oconee Nuclear Station site. New applications have been received in 1989 for CP&L's Brunswick site, for the Baltimore Gas and Electric Company's Calvert Cliffs site, and in 1990 for Consumer Power Company's Palisades site. Based on utility statements of intent, and projections of need for additional storage capacity at reactor sites, the NRC staff expects numerous applications from utilities over the next decade (see "Final Version Dry Cask Storage Study," DOE/RW-0220, February 1989).

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Since the original Waste Confidence finding, the Commission has reexamined long-term spent fuel storage in issuing an amendment to 10 CFR part 72 to address the storage of spent fuel and high-level radioactive waste in an MRS, as envisioned by Congress in Section 141 of the NWSA. Under this rule, storage in an MRS is to be licensed for a period of 40 years, with the possibility for renewal. The Commission determined not to prepare an environmental impact statement for the proposed amendments to 10 CFR part 72, however. (See 53 FR 31651, p. 31657; August 19, 1988.) An environmental assessment and finding of no significant impact were issued because the Commission found that the consequences of long-term storage are not significant. The environmental assessment for 10 CFR part 72, "Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste," NUREG-1092, assessed dry storage of spent fuel for a period of 70 years after receipt of spent fuel from a reactor:

The basis chosen for evaluating license requirements for the long-term storage of spent nuclear fuel and high-level radioactive waste in an MRS is an installation having a 70-year design lifetime and a 70,000 MTU storage capability. This assessment focuses on the potential environmental consequences for a long-term storage period, a period for which the Commission needs to assure itself of the continued safe storage of spent fuel and high-level radioactive waste and the performance of materials of construction. This means the reliability of systems important to safety needs to be established to ensure that long-term storage of spent fuel and HLW does not adversely impact the environment.

For example, the staff needs to establish that systems, such as concrete shielding, have been evaluated to determine how their physical properties withstand the consequences of irradiation and heat flux for about a 70-year period. The Commission addressed structure and component safety for extended operation for storage of spent fuel in reactor water pools in the matter of waste confidence rulemaking proceeding. The Commission's preliminary conclusion is that experience with spent fuel storage provides an adequate basis for confidence in the continued safe storage of spent fuel for at least 30 years after expiration of a plant's license. The Commission is therefore confident of the safe storage of spent fuel for at least 70 years in water pools at facilities designed for a 40-year lifetime. The Commission also stated that its authority to require continued safe management of spent fuel generated by licensed plants protects the public and assures them the risks remain acceptable. In consideration of the safety of dry storage of spent fuel, the Commission's preliminary conclusions were that [its] confidence in the extended dry storage of spent fuel is based on a reasonable

understanding of the material degradation processes, together with the recognition that dry storage systems are simpler and more readily maintained. In response to Nuclear Waste Policy Act of 1982 authorizations, the Commission noted: "...the Commission believes the information above [on dry spent fuel storage research and demonstration] is sufficient to reach a conclusion on the safety and environmental effects of extended dry storage. All areas of safety and environmental concern (e.g., maintenance of systems and components, prevention of material degradation, protection against accidents and sabotage) have been addressed and shown to present no more potential for adverse impact on the environmental and the public health and safety than storage of spent fuel in water pools." At this time, the Commission is confident it can evaluate the long-term integrity of material for constructing an installation and provide the needed assurance for safe storage of spent fuel and HLW to establish the licensibility of an MRS over extended periods of time. The MRS storage concepts discussed here for revision of 10 CFR Part 72 covers only dry storage concepts. [References omitted]

The Commission believes that its 1984 Fourth Finding should be changed to reflect the environmental assessment in the 10 CFR part 72 MRS rulemaking and other evidence that spent fuel can be stored, safely and without significant environmental impact, for extended periods. Although the Commission does not believe storage in excess of a century to be likely, with or without an MRS, there is the potential for storage of spent fuel for times longer than 30 years beyond the expiration of an initial, extended, or renewed reactor OL, if a reactor operating under such a license were prematurely shut down. The Commission does not, however, see any significant safety or environmental problems associated with storage for at least 30 years after the licensed life for operation of any reactor, even if this effectively means storage for at least 100 years, in the case of a reactor with a 70-year licensed life for operation.

Under the environmental assessment for the MRS rule, the Commission has found confidence in the safety and environmental insignificance of dry storage of spent fuel for 70 years following a period of 70 years of storage in spent fuel storage pools. Thus, this environmental assessment supports the proposition that spent fuel may be stored safely and without significant environmental impact for a period of up to 140 years if storage in spent fuel pools occurs first and the period of dry storage does not exceed 70 years.

The Commission has also found that experience with water-pool storage of spent fuel continues to confirm that pool storage is a benign environment for spent fuel that does not lead to

significant degradation of spent fuel integrity. Since 1984, utilities have continued to provide safe additional reactor pool storage capacity through reracking, with over 110 such actions now completed. The safety of storage in pools is widely recognized among cognizant professionals. Specifically, the Commission notes one expert's view that:

During the last 40 years there has been very positive experience with the handling and storing of irradiated fuel in water; thus wet storage is now considered a proved technology. There is a substantial technical basis for allowing spent fuel to remain in wet storage for several decades. For the past two decades, irradiated Zircaloy-clad fuel has been handled and stored in water. There continues to be no evidence that Zircaloy-clad fuel degrades significantly during wet storage--this includes: fuel with burnups as high as 41,000 MWd/MTU; continuous storage of low-burnup fuel for as long as 25 years; and irradiation of fuel in reactors for periods up to 22 years. Cladding defects have had little impact during wet storage, even if the fuel is uncanned. [References omitted.] [See Bailey, W.J. and Johnston, Jr. A.B., *et al.*, "Surveillance of LWR Spent Fuel in Wet Storage," NP-3765, Electric Power Research Institute (EPRI), October 1984, pp. 2-10.]

This last conclusion has been reaffirmed by the same authors, who recently wrote: "There continues to be no evidence that LWR spent fuel with Zircaloy or stainless steel cladding degrades significantly during wet storage [EPRI 1986; International Atomic Energy Agency (IAEA) 1982]." [See "Results of Studies on the Behavior of Spent Fuel in Storage," Journal of the Institute of Nuclear Materials Management, Vol. XVI, No. 3, April 1988, p. 27.IV A.)

In addition to the confidence that the spent fuel assemblies themselves will not degrade significantly in wet storage, there is confidence that the water pools in which the assemblies are stored will remain safe for extended periods:

As noted in the recent IAEA world survey, the 40 years of positive experience with wet storage illustrates that it is a fully-developed technology with no associated major technological problems. Spent fuel storage pools are operated without substantial risk to the public or the plant personnel. There is substantial technical basis for allowing spent fuel to remain in wet storage for several decades. Minor, but repairable, problems have occurred with spent fuel storage pool components such as liners, racks, and piping. [See Bailey, W.J., and Johnson, Jr., A.B., *et al.*, "Surveillance of LWR Spent Fuel in Wet Storage," EPRI NP-3765, prepared by Battelle Pacific Northwest Laboratories, Final Report, October 1984, p. 6-1.]

The studies just cited also support the view that rates of uniform corrosion of spent fuel cladding in storage pools are low over time. Localized corrosion on

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cladding surfaces has also been gradual and can be expected to remain so. Cladding that has undergone damage while in the reactor core has not resulted in significant releases of radioactivity when stored in pools. Furthermore, the operational experience accumulated since the 1984 Waste Confidence Decision and NRC experience in licensing and inspection reinforce the conclusions in that Decision that wet storage involves a relatively benign environment. There are no driving mechanisms, such as temperature and pressure, to degrade storage structures or components or the fuel itself, or to spread contamination. Degradation mechanisms are gradual and well understood; they allow ample time for remedial action, including repair or replacement of any failing systems. This extensive experience adequately supports predictions of long-term integrity of storage basins.

The Commission also notes the endorsement of this basic confidence by cognizant professional organizations:

The American Nuclear Society issued a policy statement [ANS 1986] in 1986 regarding storage of spent nuclear fuel. The statement indicates that continued wet storage of spent fuel at nuclear power plant sites until the federal government accepts it under existing contracts with the utilities is safe, economical and environmentally acceptable. [See Gilbert, E.R., Bailey, W.J., and Johnson, A.B., "Results of Studies on the Behavior of Spent Fuel in Storage," *Journal of the Institute of Nuclear Materials Management*, Vol. XVI, No. 3, April 1988, p. 27-IV A).]

The Commission is aware that in December 1986 at the Hatch nuclear power plant, radioactive water leaked out of a spent fuel transfer canal between spent fuel pools. Contaminated water drained into a swamp and from there into the Altamaha River. Also, more recently, on August 16, 1988, a spent fuel pool cooling pump failed at the Turkey Point nuclear power plant, causing about 3000 gallons of radioactive water to leak into the spent fuel pool heat exchanger room. Approximately 1500 gallons leaked from that room to adjacent areas. Approximately six to seven gallons entered the plant intake canal via storm drains. There was no radiation release offsite in this event. However, the shoes and clothing of approximately 15 workers were contaminated.

The occurrence of operational events like these have been addressed by the NRC staff at the plants listed. The staff has taken inspection and enforcement actions to reduce the potential for such operational occurrences in the future.

The NRC staff has spent several years studying in detail catastrophic loss of

reactor spent fuel pool water possibly resulting in a fuel fire in a dry pool, and recently participated in litigation over this issue relative to Vermont Yankee. The 1987 report, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82" (NUREG/CR-4982), referred to in Public Citizen's comment represents an early part of the NRC's study. Subsequent study of the consequences and risks due to a loss of coolant water from spent fuel pools was conducted by the NRC, and the results were published in NUREG/CR-5176, "Seismic Failure and Cask Drop Analysis of the Spent Fuel Pools at Two Representative Nuclear Power Plants," January 1989, and NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, >Beyond Design Basis Accidents in Spent Fuel Pools," April 1989. These reports were cited in the Commission's Proposed Waste Confidence Decision Review [54 FR 39767-39797, at p.39795, September 28, 1989]. Also issued in 1989, as part of the NRC staff's study, was "Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Pools" (NUREG/CR-5281).

The primary concern regarding accidents in spent fuel pools is the loss of water and its capability to cool the radioactive fuel. Without sufficient water cooling, some performance assessment models suggest that the fuel's zircaloy cladding may initiate and sustain rapid oxidation (fire) that may spread to adjacent fuel assemblies, with the potential of releasing large amounts of radioactivity.

The analyses reported in these NUREGs indicate that the dominant accident sequence which contributes to risk in a spent fuel pool is gross structural failure of the pool due to seismic events. Risks due to other accident scenarios (such as pneumatic seal failures, inadvertent drainage, loss of cooling or make-up water, and structural failures due to missiles, aircraft crashes and heavy load drops) are at least an order of magnitude smaller. For this study, older nuclear power plants were selected, since the older plants are more vulnerable to seismic-induced failures. The selected plants included the Vermont Yankee and the H.B. Robinson plants.

Although these studies conclude that most of the spent fuel pool risk is derived from beyond design basis earthquakes, this risk is no greater than the risk from core damage accidents due to seismic events beyond the safe-shutdown earthquake. Because of the large inherent safety margins in the design and construction of the spent fuel pool analyzed, it was determined that

no action was justified to further reduce the risk (NUREG-1353). As stated in the Preface to NUREG-1353:

This report presents the regulatory analysis, including decision rationale, for the resolution of Generic Issue 82, >Beyond Design Basis Accidents in Spent Fuel Pools.' The object of this regulatory analysis is to determine whether the use of high density storage racks for the storage of spent fuel poses an unacceptable risk to the health and safety of the public. As part of this effort, the seismic hazards for two older spent fuel pools were evaluated. The risk change estimates, value/impact and cost-benefit analyses, and other insights gained during this effort, have shown that no new regulatory requirements are warranted in relation to this generic issue.

Thus, supported by the consistency of NRC experience with that of others, the Commission has concluded that spent fuel can be stored safely and without significant environmental impact, in either wet storage or in wet storage followed by dry storage, for at least 100 years. The Commission considers it unlikely, however, that any fuel will actually remain in wet storage for 100 years or even for 70 years. We anticipate that, consistent with the currently developing trend, utilities will move fuel rods out of spent fuel pools and into dry storage to make room in pools for freshly-discharged spent fuel.

Although the Commission has concluded that reactor spent fuel pools can safely be used to store spent fuel for 100 years, there is no technically compelling reason to use them that long. If reactor licenses are renewed for as long as 30 years, making a total of 70 years of operation, it will be necessary to store the spent fuel discharged at the end of the reactor's operation in a spent fuel pool for several years to allow for radioactive decay and thermal cooling. After this period, the fuel could be placed in dry storage and the spent fuel pool decommissioned. Thus, for most reactors, the most likely maximum period of storage will be well within the extended 30-year post-operational period under the Commission's proposed revision to Finding 4. Moreover, considering that under certain conditions spent fuel can be stored safely and without significant environmental impacts for up to 140 years, the Commission believes there is ample basis for confidence in storage for at least 100 years.

In its 1984 Waste Confidence Decision, the Commission also concluded that "there are no significant additional non-radiological impacts which could adversely affect the environment if spent fuel is stored beyond the expiration of operating

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licenses for reactors" (see 49 FR 34658 at p. 34686, August 31, 1984). The Commission did not find anything to contradict this conclusion in its 1988 rulemaking amending 10 CFR part 72 for long-term spent fuel and high-level waste storage at an MRS:

In August 1984, the NRC published an environmental assessment for this proposed revision of Part 72 NUREG-1092, >Environmental Assessment for 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste. NUREG-1092 discusses the major issues of the rule and the potential impact on the environment. The findings of the environmental assessment are >(1) past experience with water pool storage of spent fuel establishes the technology for long-term storage of spent fuel without affecting the health and safety of the public, (2) the proposed rulemaking to include the criteria of 10 CFR Part 72 for storing spent nuclear fuel and high-level radioactive waste does not significantly affect the environment, (3) solid high-level waste is comparable to spent fuel in its heat generation and in its radioactive material content on a per metric ton basis, and (4) knowledge of material degradation mechanisms under dry storage conditions and the ability to institute repairs in a reasonable manner without endangering the health [and safety] of the public shows dry storage technology options do not significantly impact the environment. The assessment concludes that, among other things, there are no significant environmental impacts as a result of promulgation of these revisions of 10 CFR Part 72.

Based on the above assessment, the Commission concludes that the rulemaking action will not have a significant incremental environmental impact on the quality of the human environment. [53 FR 31651 at pp. 31657-31658; August 19, 1988.]

Thus, the 1988 amendments to 10 CFR part 72 provide the basis for the Commission to conclude that the environmental consequences of long-term spent fuel storage, including non-radiological impacts, are not significant.

Finally, no considerations have arisen to affect the Commission's confidence since 1984 that the possibility of a major accident or sabotage with offsite radiological impacts at a spent-fuel storage facility is extremely remote. NRC has recently reexamined reactor pool storage safety in two studies, "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants" (NUREG/CR-5176) and "Beyond Design Basis Accidents in Spent Fuel Pools" (NUREG-1353). These studies reaffirmed that there are no safety considerations that justify changes in regulatory requirements for pool storage. Both wet- and dry-storage activities have continued to be licensed by the Commission. In its recent rulemaking amending 10 CFR part 72 to establish

licensing requirements for an MRS, the Commission did choose to eliminate an exemption regarding tornado missile impact "...to assure designs continue to address maintaining confinement of particulate material," (53 FR 31651, p. 31655, August 19, 1988). However, NRC staff had previously considered tornado missile impacts in safety reviews of design topical reports and in licensing reviews under 10 CFR part 72.

IV.B. Relevant Issues That Have Arisen since the Commission's Original Decision on Finding 4

In its original Finding 4, the Commission found reasonable assurance of safe storage without significant environmental impacts for at least 30 years beyond reactor OL expiration. Delays and uncertainties in the schedule for repository availability since the 1984 Decision have convinced the Commission to allow some margin beyond the scheduled date for repository opening currently cited by DOE. As noted in Finding 2, the Commission has reasonable assurance that at least one repository will be available within the first quarter of the twenty-first century. For all currently operating reactors, this would still be within the period of 30 years from expiration of their OLs, which the Commission previously found to be the minimum period for which spent fuel storage could be considered safe and without significant environmental impact.

Under the NWSA as amended, DOE is authorized to dispose of up to 70,000 MTHM in the first repository before granting a construction authorization for a second. Under existing licenses, projected spent fuel generation could exceed 70,000 MTHM as early as the year 2010. Possible extensions or renewals of OLs also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository--and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses--it will be necessary to have at least one additional repository. Assuming here that the first repository is available by 2025 and has a capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor OLs.

Although action on a second repository before the year 2007 would require Congressional approval, the

Commission believes that Congress will take the necessary action if it becomes clear that the first repository site will not have the capacity likely to be needed. If DOE were able to address the need for a second repository earlier, for example by initiating a survey for a second repository site by the year 2000, DOE might be able to reduce the potential requirement for extended spent fuel storage in the twenty-first century. The Commission does not, however, find such action necessary to conclude that spent fuel can be stored safely and without significant environmental impact for extended periods.

The potential for generation and onsite storage of a greater amount of spent fuel as a result of the renewal of existing OLs does not affect the Commission's findings on environmental impacts. In Finding 4, the Commission did not base its determination on a specific number of reactors and amount of spent fuel generated. Rather, the Commission took note of the safety of spent fuel storage and lack of environmental impacts overall, noting that individual actions involving such storage would be reviewed. In the event there were applications for renewal of existing reactor OLs, each of these actions would be subject to safety and environmental reviews, with subsequent issuance of an environmental assessment or environmental impact statement, which would cover storage of spent fuel at each reactor site during the period of the renewed license.

The Commission also notes that the amount of spent fuel expected to be discharged by reactors has continued to decline significantly, a trend already noted in the Commission's discussion of its Finding 5 (49 FR 34658 at p. 34687, August 31, 1984). At the time of the Commission's decision, "...the cumulative amount of spent fuel to be disposed of in the year 2000 [was] expected to be 58,000 metric tons of uranium" (see "Spent Fuel Storage Requirements" (Update of DOE/RL-82-17) DOE/RL-83-1, January, 1983). Today, that figure has declined to 40,200 metric tons, the lower reference case which represents the conservative upper bound of commercial nuclear power growth [see "Integrated Data Base for 1989: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics," DOE/RW-0006, Rev. 5, November 1989]. The amount of spent fuel considered likely to be discharged by the year 2000 in the Commission's 1984 decision will not be attained until the end of calendar year 2010, if then.

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The Commission believes that its 1984 Finding 4 should be revised to acknowledge the possibility and assess the safety and environmental impacts of extended storage for periods longer than 70 years. The principal reasons for this proposed revision are that: (1) the long-term material and system degradation effects are well understood and known to be minor; (2) the ability to maintain the system is assured; and (3) the Commission maintains regulatory authority over any spent fuel storage installation.

On the basis of experience with wet and dry spent fuel storage and related rulemaking and licensing actions, the Commission concludes that spent fuel can be safely stored without significant environmental impact for at least 100 years, if necessary. Therefore, the Commission is revising its original Fourth Finding thus: "The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations."

Reaffirmed Finding 5: The Commission finds reasonable assurance that safe independent onsite spent fuel storage or offsite spent fuel storage will be made available if such storage capacity is needed.

V.A. Issues Considered in Commission's 1984 Decision on Finding 5

In its discussion of Finding 5 of its Waste Confidence Decision (49 FR 34658; August 31, 1984), the Commission said that:

The technology for independent spent fuel storage installations, as discussed under the fourth Commission Finding, is available and demonstrated. The regulations and licensing procedures are in place. Such installations can be constructed and licensed within a five-year time interval. Before passage of the Nuclear Waste Policy Act of 1982 the Commission was concerned about who, if anyone, would take responsibility for providing such installations on a timely basis. While the industry was hoping for a government commitment, the Administration had discontinued efforts to provide those storage facilities.... The Nuclear Waste Policy Act of 1982 establishes a national policy for providing storage facilities and thus helps to resolve this issue and assure that storage capacity will be available.

Prior to March 1981, the DOE was pursuing a program to provide temporary storage in off-site, or away-from-reactor (AFR), storage installations. The intent of the program was to provide flexibility in the national waste

disposal program and an alternative for those utilities unable to expand their own storage capacities.

Consequently, the participants in this proceeding assumed that, prior to the availability of a repository, the Federal government would provide for storage of spent fuel in excess of that which could be stored at reactor sites. Thus, it is not surprising that the record of this proceeding prior to the DOE policy change did not indicate any direct commitment by the utilities to provide AFR storage. On March 27, 1981, DOE placed in the record a letter to the Commission stating its decision >to discontinue its efforts to provide Federal government-owned or controlled away-from-reactor storage facilities.' The primary reasons for the change in policy were cited as new and lower projections of storage requirements and lack of Congressional authority to fully implement the original policy.

The record of this proceeding indicates a general commitment on the part of industry to do whatever is necessary to avoid shutting down reactors or derating them because of filled spent fuel storage pools. While industry's incentive for keeping a reactor in operation no longer applies after expiration of its operating license, utilities possessing spent fuel are required to be licensed and to maintain the fuel in safe storage until removed from the site. Industry's response to the change in DOE's policy on federally-sponsored away-from-reactor (AFR) storage was basically a commitment to do what is required of it, with a plea for a clear unequivocal Federal policy.... The Nuclear Waste Policy Act of 1982 has now provided that policy.

The Nuclear Waste Policy Act defines public and private responsibilities for spent fuel storage and provides for a limited amount of federally-supported interim storage capacity. The Act also includes provisions for monitored retrievable storage facilities and for a research development and demonstration program for dry storage. The Commission believes that these provisions provide added assurance that safe independent onsite or offsite spent fuel storage will be available if needed. [References omitted]

The policy set forth in the NWPAA regarding interim storage remains in place. Therefore, the Commission's confidence remains unchanged. The only policy change affecting storage involves long-term storage in an MRS. The NWPAA sets schedule restrictions on an MRS by tying it to the repository siting and licensing schedule. These restrictions effectively delay implementation of an MRS. Consequently, its usefulness in providing storage capacity relief to utilities is likely to be lost.

The NWPAA established a Monitored Retrievable Storage Review Commission tasked with preparing a report on the need for an MRS facility as part of the national nuclear waste management system (section 143(a)). In its November

1989 report "Nuclear Waste: Is There a Need for Federal Interim Storage?", the MRS Commission reached the following conclusion:

An MRS linked as provided in current law would not be justified, especially in light of uncertainties in the completion time for the repository. Consequently, the Commission does not recommend a linked MRS as required by current law and as proposed by DOE.

In the November 1989 Reassessment Report, DOE stated that

current linkages between the repository and MRS program make it impossible for the DOE to accept waste at an MRS facility on a schedule that is independent from that of the repository. Therefore, the DOE plans to work with the Congress to modify the current linkages between the repository and the MRS facility and to embark on an aggressive program to develop an integrated MRS facility for spent fuel. The DOE believes that if the linkages are modified, it is likely that waste acceptance at an MRS facility could begin by 1998 or soon thereafter.

Although the Commission's confidence in its 1984 Decision did not depend on the availability of an MRS facility, the possibility of such a facility, as provided for in the NWPAA, was one way in which needed storage could be made available. The NWPAA makes an MRS facility less likely by linking it to repository development, unless Congress is willing to modify these linkages. The potential impact of the uncertainty surrounding an MRS on the Commission's confidence is, however, more than compensated for by operational and planned spent fuel pool expansions and dry-storage investments by utilities themselves--developments that had not been made operational at the time of the original Waste Confidence Decision. Consequently, the current statutory restrictions that may make an MRS ineffective for timely storage capacity relief are of no consequence for the Commission's finding of confidence that adequate storage capacity will be made available if needed.

Although the NWPAA limits the usefulness of an MRS by linking its availability to repository development, the Act does provide authorization for an MRS facility. The Commission has remained neutral since its 1984 Waste Confidence Decision with respect to the need for authorization of an MRS facility. The Commission does not consider the MRS essential to protect public health and safety. If any offsite storage capacity is required, utilities may make application for a license to store spent fuel at a new site. Consequently, while the NWPAA provision does affect MRS development and therefore can be said to be limiting,

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the Commission believes this should not affect its confidence in the availability of safe storage capacity.

V.B. Relevant Issues That Have Arisen since the Commission's Original Decision on Finding 5

DOE will probably not be able to begin operation of a repository before 2010 under current plans, and operation might begin somewhat later. Given progress to date on an MRS, the link between MRS facility construction and repository construction authorization established by the NWPAA, and the absence of other concrete DOE plans to store the spent fuel, it seems unlikely that DOE will meet the 1998 deadline for taking title to spent fuel, unless DOE is successful in its efforts to work with Congress to modify the linkages. (Under section 302(a)(5)(B) of the NWPAA, "...the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel [subject to disposal contracts].") This potential problem does not, however, affect the Commission's confidence that storage capacity will be made available as needed.

The possibility of a dispute between DOE and utilities over the responsibility for providing spent fuel storage will not affect the public health and safety or the environment. Uncertainty as to contractual responsibilities raises questions concerning: (1) who will be responsible; (2) at what point in time responsibility for the spent fuel will be transferred; (3) how the fuel will be managed; (4) how the transfer of management responsibility from the utilities to DOE will take place; and (5) how the cost of DOE storage might differ, if at all, from utility storage. Utilities possessing spent fuel in storage under NRC licenses cannot abrogate their safety responsibilities, however. Until DOE can safely accept spent fuel, utilities or some other licensed entity will remain responsible for it.

Estimates of the amount of spent fuel generated have continued to decline. At the time of the Commission's Decision, the Commission cited in Finding 5 the cumulative figure of 58,000 metric tons uranium of spent fuel generated in the year 2000 (See 49 FR 34658, p. 34697, August 31, 1984.) More recently, DOE estimated 40,200 metric tons the lower reference case which represents the conservative upper bound of commercial nuclear power growth (see "Integrated Data Base for 1989: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics," DOE/RW-0006, Rev. 5, November 1989). Although estimates may show an increase at some date well into the

twenty-first century if licenses of some reactors are renewed or extended, this possibility does not affect the Commission's confidence in the availability of safe storage capacity until a repository is operational. The industry has made a general commitment to provide storage capacity, which could include away-from-reactor (AFR) storage capacity. To date, however, utilities have sought to meet storage capacity needs at their respective reactor sites. Thus, a new industry application for AFR storage remains only a potential option, which currently seems unnecessary and unlikely.

Utilities have continued to add storage capacity by racking spent fuel pools, and NRC expects continued racking where it is physically possible and represents the least costly alternative. Advances in dry-storage technologies and utility plans both have a positive effect on NRC's confidence. At the time the Commission reached its original findings, dry storage of LWR spent fuel was, as yet, unlicensed under 10 CFR part 72, and DOE's dry-storage demonstrations in support of dry-cask storage were in progress at the Idaho National Engineering Laboratory (INEL).

Today, DOE's demonstration efforts have been successful (See Godlewski, N. Z., "Spent Fuel Storage-An Update," *Nuclear News*, Vol. 30, No. 3, March 1987, pp. 47-52, at p. 47.) Dry storage has been licensed at three reactor sites, and three new applications are under review. Dry cask storage is licensed at Virginia Electric Power Company's Surry Power Station site (see License, SNM 2501 under Docket No. 72-2), and dry-concrete module and stainless-steel canister storage is licensed at Carolina Power and Light Company's (CP&L's) H. B. Robinson, Unit 2, site (see License SNM 2502, under Docket No. 72-3). A license was recently granted for a similar modular system at Duke Power Company's Oconee Nuclear Station site. New applications have been received in 1989 for CP&L's Brunswick site, the Baltimore Gas and Electric Company's Calvert Cliffs site, and in 1990 for Consumer Power Company's Palisades site. Applications are also expected for CP&L's Robinson 2 site (at another onsite location to allow for greater storage capacity) and Wisconsin Electric Power Company's Point Beach site. The Tennessee Valley Authority has indicated that it will apply for a licensed dry storage installation at its Sequoyah plant site.

Thus, the successful demonstration by DOE of dry cask technology for various cask types at INEL, utilities' actions to forestall spent fuel storage capacity shortfalls, and the continuing sufficiency

of the licensing record for the Commission to authorize increases in at-reactor storage capacity all strengthen the Commission's confidence in the availability of safe and environmentally sound spent fuel storage capacity.

Renewal of reactor OLs will involve consideration of how additional spent fuel generated during the extended term of the license will be stored onsite or offsite. There will be sufficient time for construction and licensing of any additional storage capacity needed.

In summary, the Commission finds no basis to change the Fifth Finding in its Waste Confidence Decision. Changes by the NWPAA, which may lessen the likelihood of an MRS facility, and the potential for some slippage in repository availability to the first quarter of the twenty-first century (see our discussion of Finding 2) are more than offset by the continued success of utilities in providing safe at-reactor-site storage capacity in reactor pools and their progress in providing independent onsite storage. Therefore, the Commission continues to find "...reasonable assurance that safe independent onsite spent fuel storage or offsite spent fuel storage will be made available if such storage is needed."

Dated at Rockville, Maryland, this 11th day of September 1990.

For the Nuclear Regulatory Commission.

Samuel J. Chalk,
Secretary of the Commission.

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

58 FR 7715
Published 2/9/93
Effective 7/1/93

Licenses and Radiation Safety Requirements for Irradiators

See Part 36 Statements of Consideration

59 FR 48944
Published 9/23/94
Effective 10/24/94

Certification of Gaseous Diffusion Plants

See Part 76 Statements of Consideration

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60 FR 22461
Published 5/8/95
Effective 6/7/95

*Nuclear Power Plant License Renewal;
Revisions*

See Part 54 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

61 FR 9901
Published 3/12/96
Effective 3/12/96

Minor Correcting Amendments

See Part 19 Statements of Consideration

61 FR 28467
Published 6/5/96
Effective date delayed to 9/5/96
Comment period extended to 8/5/96

10 CFR Part 51
RIN 3150-AD63

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations regarding environmental protection regulations for domestic licensing and related regulatory functions to establish new requirements for the environmental review of applications to renew the operating licenses of nuclear power plants. The amendment defines those environmental impacts for which a generic analysis has been performed that will be adopted in plant-specific reviews for license renewal and those environmental impacts for which plant-specific analyses are to be performed.

The amendment improves regulatory efficiency in environmental reviews for license renewal by drawing on the considerable experience of operating nuclear power reactors to generically

assess many of the environmental impacts that are likely to be associated with license renewal. The amendment also eliminates consideration of the need for generating capacity and of utility economics from the environmental reviews because these matters are under the regulatory jurisdiction of the States and are not necessary for the NRC's understanding of the environmental consequences of a license renewal decision.

The increased regulatory efficiency will result in lower costs to both the applicant in preparing a renewal application and to the NRC for reviewing plant-specific applications and better focus of review resources on significant case specific concerns. The results should be a more focused and therefore a more effective NEPA review for each license renewal. The amendment will also provide the NRC with the flexibility to address unreviewed impacts at the site-specific stage of review and allow full consideration of the environmental impacts of license renewal.

The NRC is soliciting public comment on this rule for a period of 30 days. In developing any comment specific attention should be given to the treatment of low-level waste storage and disposal impacts, the cumulative radiological effects from the uranium fuel cycle, and the effects from the disposal of high-level waste and spent fuel.

DATES: Absent a determination by the NRC that the rule should be modified, based on comments received, the final rule shall be effective on August 5, 1996. The comment period expires on July 5, 1996.

ADDRESSES: Send comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Docketing and Services Branch, or hand deliver comments to the Office of the Secretary, One White Flint North, 11555 Rockville Pike, Rockville, Maryland between 7:30 a.m. and 4:15 p.m. on Federal workdays. Copies of comments received and all documents cited in the supplementary information may be examined at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC between the hours of 7:45 a.m. and 4:15 p.m. on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Donald P. Cleary, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-6263; e-mail DPC@nrc.gov.

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I. Introduction

The Commission has amended its environmental protection regulations in 10 CFR part 51 to improve the efficiency of the process of environmental review for applicants seeking to renew an operating license for up to an additional 20 years. The amendments are based on the analyses conducted for and reported in NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (May 1996). The Commission's initial decision to undertake a generic assessment of the environmental impacts associated with the renewal of a nuclear power plant operating license was motivated by its beliefs that:

(1) License renewal will involve nuclear power plants for which the

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environmental impacts of operation are well understood as a result of data evaluated from operating experience to date;

(2) Activities associated with license renewal are expected to be within this range of operating experience, thus environmental impacts can be reasonably predicted; and

(3) Changes in the environment around nuclear power plants are gradual and predictable with respect to characteristics important to environmental impact analyses.

Although this amendment is consistent with the generic approach and scope of the proposed amendment published on September 17, 1991 (56 FR 47016), several significant modifications have been made in response to the public comments received. The proposed amendment would have codified the findings reached in the draft generic environmental impact statement (GEIS) as well as certain procedural requirements. The draft GEIS established the bounds and significance of potential environmental impacts at 118 light-water nuclear power reactors that, as of 1991, were licensed to operate or were expected to be licensed in the future.

All potential environmental impacts and other matters treated by the NRC in an environmental review of nuclear power plants were identified and combined into 104 discrete issues. For each issue, the NRC staff established generic findings encompassing as many nuclear power plants as possible. These findings would have been codified by the proposed amendment. Of the 104 issues reviewed for the proposed rule, the staff determined that 80 issues could be adequately addressed generically and would not have been reviewed in plant-specific license renewal reviews. For 22 of the issues, it was found that the issue was adequately addressed for some but not all plants. Therefore, a plant-specific review would be required to determine whether the plant is covered by the generic review or whether the issue must be assessed for that plant. The proposed amendment provided guidance on the application of these findings at the site-specific license renewal stage. For the two remaining issues, it was found that the issue was not generically addressed for any plant, and thus a plant-specific review would have been required for all plants.

Other major features of the proposed amendment included a conditional finding of a favorable cost-benefit balance for license renewal and a provision for the use of an environmental assessment that would address only those issues requiring

plant-specific review. A finding of no significant impact would have resulted in a favorable cost-benefit balance for that plant. If a finding of no significant impact could not be made for the plant, there would have to have been a determination as to whether the impacts found in the environmental assessment were sufficient to overturn the conditional cost-benefit balance found in the rule.

Although the final amendments to 10 CFR part 51 maintain the same generic approach used in the proposed rule, there are several modifications. The final amendments to 10 CFR part 51 now contain 92 issues. The reduction of the number of issues from 104 in the proposed rule to 92 in the final rule is due to (1) the elimination from the review of the consideration of the need for electric power and associated generating capacity and of the direct economic benefits and costs associated with electric power, (2) removing alternatives as an issue from Table B-1 and addressing review requirements only in the text of the rule, (3) combining the five severe accident issues used in the proposed rule into one issue, (4) eliminating several regional economic issues under socioeconomic issues that are not directly related to environmental impacts, (5) making minor changes to the grouping of issues under aquatic ecology and groundwater, (6) identifying collective offsite radiological impacts associated with the fuel cycle and all impacts of high level waste and spent fuel disposal as separate issues, and (7) adding environmental justice as an issue for consideration.

Of the 92 issues in the final rule, 68 issues were found to be adequately addressed in the GEIS, and therefore, additional assessment will not be required in a plant-specific review. Twenty-four issues were found to require additional assessment for at least some plants at the time of the license renewal review. In the final rule, the 2 issues in the proposed rule that would have required review for all plants are now included in the set of 24 issues of the final rule.

Public comments on the adequacy of the analysis for each issue were considered by the NRC staff. Any changes to the analyses and findings that were determined to be warranted were made in the final GEIS and incorporated in the rule. Several changes were made to the procedural features of the proposed rule in response to comments by the Council on Environmental Quality, the Environmental Protection Agency, and a number of State agencies. First, the NRC

will prepare a supplemental site-specific environmental impact statement (SEIS), rather than an environmental assessment (as initially proposed), for each license renewal application. The SEIS will be issued for public comment as part of the individual plant review process. The NRC will delay any conclusions regarding the acceptability of the overall impacts of the license renewal until completion of the site-specific review. In addition, the SEIS will be prepared in accordance with existing public scoping requirements. The NRC will also review and consider any new and significant information presented during the review of individual license renewal applications. In addition, any person may challenge the validity of the conclusions codified in the rule by filing a petition for rulemaking pursuant to 10 CFR 2.802. Finally, the NRC will review the rule and the GEIS on a schedule that allows revisions, if required, every 10 years. This review will be initiated approximately 7 years after the completion of the previous revision cycle.

In addition to the changes involving public participation, this final rule also contains several changes regarding the scope of analysis and conclusions in the rule and GEIS. The conditional cost-benefit balance has been removed from the GEIS and the rule. In place of the cost-benefit balancing, the NRC will use a new standard that will require a determination of whether or not the adverse environmental impacts of license renewal are so great, compared with the set of alternatives, that preserving the option of license renewal for future decisionmakers would be unreasonable. The final amendment also eliminates NRC's consideration of the need for generating capacity and the preparation of power demand forecasts for license renewal applications. The NRC acknowledges the primacy of State regulators and utility officials in defining energy requirements and determining the energy mix within their jurisdictions. Therefore, the issue of need for power and generating capacity will no longer be considered in NRC's license renewal decisions. The final GEIS has been revised to include an explicit statement of purpose and need for license renewal consistent with this acknowledgment. Lastly, the final rule has eliminated the consideration of utility economics from license renewal reviews under the National Environmental Policy Act (NEPA) except when such benefits and costs are either essential for a determination regarding the inclusion of an alternative

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in the range of alternatives considered or relevant to mitigation. These and other features of the final rule are explained in detail below.

The NRC is soliciting public comment on this rule for a period of 30 days. In developing any comment specific attention should be given to the treatment of low-level waste storage and disposal impacts, the cumulative radiological effects from the uranium fuel cycle, and the effects from the disposal of high-level waste and spent fuel. Absent a determination by the NRC that the rule should be modified, based on comments received, the final rule shall be effective on August 5, 1996.

II. Rulemaking History

In 1986, the NRC initiated a program to develop license renewal regulations and associated regulatory guidance in anticipation of applications for the renewal of nuclear power plant operating licenses. A solicitation for comments on the development of a policy statement was published in the *Federal Register* on November 6, 1986 (51 FR 40334). However, the Commission decided to forgo the development of a policy statement and to proceed directly to rulemaking. An advance notice of proposed rulemaking was published on August 29, 1988 (53 FR 32919). Subsequently, the NRC determined that, in addition to the development of license renewal regulations focused on the protection of health and safety, an amendment to its environmental protection regulations in 10 CFR part 51 was warranted.

On October 13, 1989 (54 FR 41980), the NRC published a notice of its intent to hold a public workshop on license renewal on November 13 and 14, 1989. One of the workshop sessions was devoted to the environmental issues associated with license renewal and the possible merit of amending 10 CFR part 51. The workshop is summarized in NUREG/CP-0108, "Proceedings of the Public Workshop on Nuclear Power Plant License Renewal" (April 1990). Responses to the public comments submitted after the workshop are summarized in NUREG-1411, "Response to Public Comments Resulting from the Public Workshop on Nuclear Power Plant License Renewal" (July 1990).

On July 23, 1990, the NRC published an advance notice of proposed rulemaking (55 FR 29964) and a notice of intent to prepare a generic environmental impact statement (55 FR 29967). The proposed rule was published on September 17, 1991 (56 FR 47016). The same *Federal Register* notice described the supporting

documents that were available and announced a public workshop to be held on November 4-5, 1991. The supporting documents for the proposed rule included:

(1) NUREG-1437, "Draft Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (August 1991);

(2) NUREG-1440, "Regulatory Analysis of Proposed Amendments to Regulations Concerning the Environmental Review for Renewal of Nuclear Power Plant Operating Licenses: Draft Report for Comment" (August 1991);

(3) Draft Regulatory Guide DG-4002, Proposed Supplement 1 to Regulatory Guide 4.2, "Guidance for the Preparation of Supplemental Environmental Reports in Support of an Application To Renew a Nuclear Power Station Operating License" (August 1991); and

(4) NUREG-1429, "Environmental Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants: Draft Report for Comment" (August 1991).

After the comment period, the NRC exchanged letters with the Council on Environmental Quality (CEQ) and the Environmental Protection Agency (EPA) to address their concerns about procedural aspects of the proposed rule. The Commission also decided that the staff should discuss with the States the concerns raised in comments by a number of States that certain features of the proposed rule conflicted with State regulatory authority over the need for power and utility economics. To facilitate these discussions, the NRC staff developed an options paper entitled "Addressing the Concerns of States and Others Regarding the Role of Need for Generating Capacity, Alternative Energy Sources, Utility Costs, and Cost-Benefit Analysis in NRC Environmental Reviews for Relicensing Nuclear Power Plants: An NRC Staff Discussion Paper." A *Federal Register* notice published on January 18, 1994 (59 FR 2542) announced the scheduling of three regional workshops during February 1994 and the availability of the options paper. A fourth public meeting on the State concerns was held in May 1994 in order for the NRC staff to better understand written proposals that had been submitted by two industry organizations after the regional workshops. After considering the comments from the workshops and the written comments, the NRC staff issued a proposed supplement to the proposed rule published on July 25, 1994 (59 FR 37724), that it believed would resolve the States' concerns regarding the

Commission's consideration of need for power and utility economics. Comments were requested on this proposal. The discussion below contains an analysis of these comments and other comments submitted in response to the proposed rule.

III. Analysis of Public Comments

The analysis of public comments and the NRC's responses to these comments are documented in NUREG-1529, "Public Comments on the Proposed 10 CFR part 51 Rule for Renewal of Nuclear Power Plant Operating Licenses and Supporting Documents: Review of Concerns and NRC Staff Response" (May 1996). The extent of comments received during the various stages of the rulemaking process and the principal concerns raised by the commenters, along with the corresponding NRC responses to these concerns, are discussed below.

A. Commenters

In response to the *Federal Register* notice on the proposed rule published on September 17, 1991 (56 FR 47016), 68 organizations and 49 private citizens submitted written comments. The 68 organizations included 5 Federal agencies; 26 State, regional, and local agencies; 19 nuclear industry organizations and engineering firms; 3 law firms; and 15 public interest groups. Before the close of the initial comment period, the NRC conducted a 2-day workshop on November 4-5, 1991, in Arlington, Virginia, to discuss the proposed rule. Representatives from Federal agencies, State agencies, utilities, engineering firms, law firms, and public interest groups attended the workshop. Workshop panelists included the NRC staff as well as representatives from the Department of Energy (DOE), Department of Interior (DOI), Environmental Protection Agency (EPA), Council on Environmental Quality (CEQ), several State agencies, the nuclear industry, and public interest groups.

In February 1994, the NRC conducted three public meetings to solicit views on the NRC staff's options for addressing the need for generating capacity, alternative energy sources, economic costs, and cost-benefit analysis in the proposed rule. The intent to hold public meetings and the availability of the options paper was noticed in the *Federal Register* on January 12, 1994 (59 FR 2542). Written comments were also solicited on the options paper. The public meetings were held in Rockville, Maryland; Rosemont, Illinois; and Chicopee, Massachusetts.

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Representatives from several States, the National Association of Regulatory Utility Commissioners (NARUC), the nuclear industry, and public interest groups actively participated. Nineteen separate written comments were also submitted, primarily by the States and the nuclear industry. In their submittals, the Nuclear Energy Institute (NEI), formerly known as the Nuclear Management and Resources Council (NUMARC), and Yankee Atomic Electric Company (YAEC) each proposed an approach to handling the issues of need for generating capacity and alternative energy sources in the rule. For the NRC staff to better understand these proposals, an additional public meeting was held with NEI and YAEC on May 16, 1994, in Rockville, Maryland.

After considering the public comments on the NRC staff's options paper, the NRC issued a proposed supplement to the proposed rule; it was published in the Federal Register on July 25, 1994 (59 FR 37724). The proposed supplement set forth the NRC staff's approach to the treatment of need for generating capacity and alternative energy sources, as well as the staff's revision to the purpose of and need for the proposed action (i.e., license renewal), which was intended to satisfy the States' concerns and to meet NEPA requirements. Twenty separate written comments were received in response to this solicitation from Federal and State agencies, the nuclear industry, a public interest group, and two private citizens.

B. Procedural Concerns

The commenters on the proposed rule raised significant concerns regarding the following procedural aspects of the rule:

- (1) State and public participation in the license renewal process and the periodic assessment of the GEIS findings;
- (2) The use of economic costs and cost-benefit balancing; and
- (3) Consideration of the need for generating capacity and alternative energy sources in the environmental review of license renewal applications.

Each of these concerns and the NRC response is discussed below.

1. Public Participation and the Periodic Assessment of the Rule and the GEIS

Concern. Many commenters criticized the draft GEIS finding that 80 of 104 environmental issues could be generically applied to all plants and, therefore, would not be subject to plant-specific review at the time of license renewal. As a consequence, these commenters believe they are being denied the opportunity to participate in the license renewal process. Moreover,

they pointed out that the site-specific nature of many important environmental issues does not justify a generic finding, particularly when the finding would have been made 20 years in advance of the decision to renew an operating license. The commenters believe that only a site-specific EIS to support a license renewal decision would satisfy NEPA requirements.

Federal and State agencies questioned how new scientific information could be folded into the GEIS findings because the GEIS would have been performed so far in advance of the actual renewal of an operating license. There were differing views on exactly how the NRC should address this question. A group of commenters, including CEQ and EPA, noted that the rigidity of the proposed rule hampers the NRC's ability to respond to new information or to different environmental issues not listed in the proposed rule. They believe that incorporation of new information can only be achieved through the process of amending the rules. One commenter recommended that, if the NRC decides to pursue the approach of making generic findings based on the GEIS, the frequency of review and update should be specifically stated in the rule. Recommendations on the frequency of the review ranged from 2 years to 5 years.

Response. In SECY-93-032, February 9, 1993, the NRC staff reported to the Commission their discussions with CEQ and EPA regarding the concerns these agencies raised, which were also raised by other commenters, about limiting public comment and the consideration of significant new information in individual license renewal environmental reviews. The focus of the commenters concerns is the limited nature of the site-specific reviews contemplated under the proposed rule. In response, the NRC has reviewed the generic conclusions in the draft rule, expanded the opportunity for site-specific review, and confirmed that what remains as generic is so. Also, the framework for consideration of significant new information has been revised and expanded.

The major changes adopted as a result of these discussions are as follows:

1. The NRC will prepare a supplemental site-specific EIS, rather than an environmental assessment (as initially proposed), for each license renewal application. This SEIS will be a supplement to the GEIS. Additionally, the NRC will review comments on the draft SEIS and determine whether such comments introduce new and significant information not considered in the GEIS analysis. All comments on

the applicability of the analyses of impacts codified in the rule and the analysis contained in the draft supplemental EIS will be addressed by NRC in the final supplemental EIS in accordance with 40 CFR 1503.4, regardless of whether the comment is directed to impacts in Category 1 or 2. Such comments will be addressed in the following manner:

a. NRC's response to a comment regarding the applicability of the analysis of an impact codified in the rule to the plant in question may be a statement and explanation of its view that the analysis is adequate including, if applicable, consideration of the significance of new information. A commenter dissatisfied with such a response may file a petition for rulemaking under 10 CFR 2.802. If the commenter is successful in persuading the Commission that the new information does indicate that the analysis of an impact codified in the rule is incorrect in significant respects (either in general or with respect to the particular plant), a rulemaking proceeding will be initiated.

b. If a commenter provides new information which is relevant to the plant and is also relevant to other plants (i.e., generic information) and that information demonstrates that the analysis of an impact codified in the final rule is incorrect, the NRC staff will seek Commission approval to either suspend the application of the rule on a generic basis with respect to the analysis or delay granting the renewal application (and possibly other renewal applications) until the analysis in the GEIS is updated and the rule amended. If the rule is suspended for the analysis, each supplemental EIS would reflect the corrected analysis until such time as the rule is amended.

c. If a commenter provides new, site-specific information which demonstrates that the analysis of an impact codified in the rule is incorrect with respect to the particular plant, the NRC staff will seek Commission approval to waive the application of the rule with respect to that analysis in that specific renewal proceeding. The supplemental EIS would reflect the corrected analysis as appropriate.

2. The final rule and the GEIS will not include conditional cost-benefit conclusions or conclusions about alternatives. Conclusions relative to the overall environmental impacts including cumulative impacts will be left entirely to each site-specific SEIS.

3. After consideration of the changes from the proposed rule to the final rule and further review of the environmental issues, the NRC has concluded that it is

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adequate to formally review the rule and the GEIS on a schedule that allows revisions, if required, every 10 years. The NRC believes that 10 years is a suitable period considering the extent of the review and the limited environmental impacts observed thus far, and given that the changes in the environment around nuclear power plants are gradual and predictable with respect to characteristics important to environmental impact analyses. This review will be initiated approximately 7 years after completion of the last cycle. The NRC will conduct this review to determine what, if anything, in the rule requires revision.

Concern. As part of their comments on the July 1994 Federal Register notice, NEI, several utilities, and the DOE asked that the NRC reconsider its understanding with CEQ and EPA regarding the preparation of a site-specific supplemental EIS for each license renewal action. These commenters supported an approach that would allow the preparation of an environmental assessment for reviewing the environmental impacts of license renewal.

Response. The NRC does not agree with this position. The NRC believes that it is reasonable to expect that an assessment of the full set of environmental impacts associated with an additional 20 years of operation of any plant would not result in a "finding of no significant impact." Therefore, the review for any plant would involve an environmental impact statement.

2. Economic Costs and Cost-Benefit Balancing

Concern. State, Federal, and utility representatives expressed concern about the use of economic costs and cost-benefit balancing in the proposed rule and the draft GEIS. Commenters criticized the NRC's heavy emphasis on economic analysis and the use of economic decision criteria. They argued that the regulatory authority over utility economics falls within the States' jurisdiction and to some extent within the jurisdiction of the Federal Energy Regulatory Commission. Commenters also believe that the cost-benefit balancing used in the proposed rule and the draft GEIS went beyond NEPA requirements and CEQ regulations (40 CFR Parts 1500 to 1508). They noted that CEQ regulations interpret NEPA to require only an assessment of the cumulative effects of a proposed Federal action on the natural and man-made environment.

Response. In response to these concerns, the NRC has eliminated the use of cost-benefit analysis and

consideration of utility economics in its NEPA review of a license renewal application except when such benefits and costs are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation. As discussed in more detail in the following section, the NRC recognizes that the determination of the economic viability of continuing the operation of a nuclear power plant is an issue that should be left to appropriate State regulatory and utility officials.

3. Need for Generating Capacity and Alternative Energy Sources

Concern. In their comments on the proposed rule and the draft GEIS, several States expressed concern that the NRC's analysis of need for generating capacity would preempt or prejudice State energy planning decisions. They argued that the determination of need for generating capacity has always been the States' responsibility. Recommendations on how to address this issue ranged from withdrawing the proposed rule to changing the categorization of the issue so that a site-specific review can be performed, thus allowing for meaningful State and public participation. Almost all the concerned States called on the NRC to modify the rule to state explicitly that NRC's analysis does not preempt a State's jurisdiction over the determination of need for generating capacity.

Regarding the issue of alternative energy sources, several commenters contended that the site-specific nature of the alternatives to license renewal did not justify the generic finding in the GEIS. One significant concern about this finding is the States' perception that a generic finding, in effect, preempts the States' responsibility to decide on the appropriate mix of energy alternatives in their respective jurisdictions.

Three regional public meetings were held during the February 1994 to discuss the concerns of the States. At these meetings, and later in written comments, the State of New York proposed an approach to resolve the problem. The approach was endorsed by several other States. This approach had three major conditions:

(1) A statement in the rule that the NRC's findings on need and alternatives are only intended to satisfy the NEPA requirements and do not preclude the States from making their own determination with respect to these issues;

(2) The designation of the need for generating capacity and alternative

energy sources as Category 3 (i.e., requiring site-specific evaluation); and

(3) A requirement that all site-specific EISs and relicensing decisions reference State determinations of need for generating capacity and alternative energy sources, and that they defer to those State determinations to the maximum extent possible.

Response. After consideration, the NRC staff did not accept all elements of the States' approach because the approach would have continued to require the NRC to consider the need for generating capacity and utility economics as part of its environmental analysis. In addition, the approach would have required the NRC to develop guidelines for determining the acceptability of State economic analyses, which some States may have viewed as an intrusion on their planning process.

The NRC staff developed and recommended another approach, which was published on July 25, 1994 (59 FR 37724), after consideration of information gathered at the regional meetings and from the written comments. This approach, which borrows some elements from NEI and YAEAC proposals, has five major features:

(1) Neither the rule nor the GEIS would contain a consideration of the need for generating capacity or other issues involving the economic costs and benefits of license renewal and of the associated alternatives;

(2) The purpose and need for the proposed action (i.e., license renewal) would be defined as preserving the continued operation of a nuclear power plant as a safe option that State regulators and utility officials may consider in their future planning actions;

(3) The only alternative to the proposed action would be the "no-action" alternative, and the environmental consequences of this alternative are the impacts of a range of energy sources that might be used if a nuclear power plant operating license were not renewed;

(4) The environmental review for license renewal would include a comparison of the environmental impacts of license renewal with impacts of the range of energy sources that may be chosen in the case of "no action"; and

(5) The NRC's NEPA decision standard for license renewal would require the NRC to determine whether the environmental impacts of license renewal are so great that preserving the option of license renewal for future decisionmakers would be unreasonable.

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The statement that the use of economic costs will be eliminated in this approach refers to the ultimate NEPA decision regarding the comparison of alternatives and the proposed action. This approach does not preclude a consideration of economic costs if these costs are essential to a determination regarding the inclusion of an alternative in the range of alternatives considered (i.e., an alternative's exorbitant cost could render it nonviable and unworthy of further consideration) or relevant to mitigation of environmental impacts. Also, the two local tax issues and the two economic structure issues under socioeconomics in the table would be removed from consideration when applying the decision standard.

Concern. Comments received from several States on the NRC staff's July 1994 recommended approach ranged from rejection to endorsement. Some States supported the three conditions proposed by the State of New York. Several States were still concerned about whether a meaningful analysis of need for generating capacity and alternative energy sources could be undertaken 20 years ahead of time. One State asked that the proposed rule be withdrawn. Another State wanted the proposed rule to be reissued for public comment. CEQ supported the approach proposed by the State of New York. CEQ believed that the NRC's recommended approach was in conflict with the NEPA process because the proposed statement of purpose and need for the proposed action was too narrow and did not provide for an appropriate range of alternatives to the underlying need for the proposed action. CEQ wanted the NRC to address other energy sources as separate alternatives, rather than as consequences of the no-action alternative. Moreover, CEQ stated that the proposed decision standard places a "weighty and improper burden of proof" on consideration of the alternative. The EPA endorsed CEQ's comments. In general, the nuclear industry was supportive of the recommended approach. However, NEI and the utilities strongly expressed the opinion that, with the redefined statement of purpose and need, alternative energy sources would no longer be alternatives to the proposed action and, therefore, need not be considered.

Response. After consideration of the comments received on the Commission's July 1994 proposal, the Commission has modified and clarified its approach in order to address the concerns of CEQ relative to consideration of appropriate alternatives

and the narrow definition of purpose and need. These modifications and clarifications addressed the States' concerns relative to treatment of need for generating capacity and alternatives. Specifically, the Commission has clarified the purpose and need for license renewal in the GEIS as follows:

The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decisionmakers.

Using this definition of the purpose of and need for the proposed action, which stresses options for the generation of power, the environmental review will include a characterization of alternative energy sources as being the alternatives to license renewal and not merely the consequences of the no-action alternative and, thus, it addresses CEQ's concern that the scope of the alternatives analysis is unacceptably restricted.

With respect to the States' concerns regarding need for generating capacity analysis, the NRC will neither perform analyses of the need for power nor draw any conclusions about the need for generating capacity in a license renewal review. This definition of purpose and need reflects the Commission's recognition that, absent findings in the safety review required by the Atomic Energy Act of 1954, as amended, or in the NEPA environmental analysis that would lead the NRC to reject a license renewal application, the NRC has no role in the energy planning decisions of State regulators and utility officials. From the perspective of the licensee and the State regulatory authority, the purpose of renewing an operating license is to maintain the availability of the nuclear plant to meet system energy requirements beyond the term of the plant's current license. The underlying need that will be met by the continued availability of the nuclear plant is defined by various operational and investment objectives of the licensee. Each of these objectives may be dictated by State regulatory requirements or strongly influenced by State energy policy and programs. In cases of interstate generation or other special circumstances, Federal agencies such as the Federal Energy Regulatory Commission (FERC) or the Tennessee Valley Authority (TVA) may be involved in making these decisions. The objectives of the various entities involved may include lower energy cost, increased efficiency of energy

production and use, reliability in the generation and distribution of electric power, improved fuel diversity within the State, and environmental objectives such as improved air quality and minimized land use.

The consideration of alternatives has been shifted to the site-specific review. The rule contains no information or conclusions regarding the environmental impacts of alternative energy sources, it only indicates that the environmental impact of alternatives will be considered during the individual plant review. However, the GEIS contains a discussion of the environmental impacts of alternative energy sources based on currently available information. The information in the GEIS is available for use by the NRC and the licensee in performing the site-specific analysis of alternatives and will be updated as appropriate. For individual plant reviews, information codified in the rule, information developed in the GEIS, and any significant new information introduced during the plant-specific review, including any information received from the State, will be considered in reaching conclusions in the supplemental EIS. The NRC's site-specific comparison of the impacts of license renewal with impacts of alternative energy sources will involve consideration of information provided by State agencies and other members of the public. This approach should satisfy the States' concerns relative to a meaningful analysis of alternative energy sources.

The Commission disagrees with CEQ's assertion that the new decision standard is inappropriate. Under this decision standard, the NRC must determine if the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable. The Commission expects that license renewal would be denied only if the expected environmental effects of license renewal significantly exceed all or almost all alternatives. The Commission believes that this is a reasonable approach to addressing the issue of environmental impacts of license renewal, given NRC's limited role in the area of energy systems planning. The operation of a nuclear power plant beyond its initial license term involves separate regulatory actions, one taken by the utility and the NRC, and the other taken by the utility and the State regulatory authorities. The decision standard would be used by NRC to determine whether, from an environmental perspective, it is

reasonable to renew the operating license and allow State and utility decisionmakers the option of considering a currently operating nuclear power plant as an alternative for meeting future energy needs. The test of reasonableness focuses on an analysis of whether the environmental impacts anticipated for continued operation during the term of the renewed license reasonably compare with the impacts that are expected from the set of alternatives considered for meeting generating requirements. The NRC would reject a license renewal application if the analysis demonstrated that the adverse environmental impacts of the individual license renewal were so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

After the NRC makes its decision based on the safety and environmental considerations, the final decision on whether or not to continue operating the nuclear plant will be made by the utility, State, and Federal (non-NRC) decisionmakers. This final decision will be based on economics, energy reliability goals, and other objectives over which the other entities may have jurisdiction. The NRC has no authority or regulatory control over the ultimate selection of future energy alternatives. Likewise, the NRC has no regulatory power to ensure that environmentally superior energy alternatives are used in the future. Given the absence of the NRC's authority in the general area of energy planning, the NRC's rejection of a license renewal application based on the existence of a single superior alternative does not guarantee that such an alternative will be used. In fact, it is conceivable that the rejection of a license renewal application by the NRC in favor of an individual alternative may lead to the implementation of another alternative that has even greater environmental impacts than the proposed action, license renewal.

Given the uncertainties involved and the lack of control that the NRC has in the choice of energy alternatives in the future, the Commission believes that it is reasonable to exercise its NEPA authority to reject license renewal applications only when it has determined that the impacts of license renewal sufficiently exceed the impacts of all or almost all of the alternatives that preserving the option of license renewal for future decision makers would be unreasonable. Because the objectives of the utility and State decisionmakers will ultimately be the determining factors in whether a nuclear power plant will continue to operate, NRC's proposed decision

standard is appropriate. The decision standard will not affect the scope or rigor of NRC's analyses, including the consideration of the environmental impacts relevant to the license renewal decision and associated alternatives. The NRC staff believes that, under the circumstances, the decision standard does not place "a weighty and improper burden of proof" on other alternatives as CEQ claims.

With respect to the industry's desire to eliminate consideration of alternative energy sources, the Commission does not agree. The Commission does not support the views of NEI and others that alternative energy sources need not be considered in the environmental review for license renewal. The Commission is not prepared to state that no nuclear power plant will fall well outside the range of other reasonably available alternatives far in advance of an actual relicensing decision. Following NEI's suggestion would not lead to a meaningful set of alternatives with which to compare a proposed action. The Commission has always held the view that alternative sources of energy should be compared with license renewal and continued operation of a nuclear power plant.

Lastly, the Commission does not believe it is necessary to reissue this rule for public comment as a State commenter requested. The Commission has taken many measures to involve the public concerning the resolution of public comments on the proposed rule. The Commission has conducted a number of public meetings and published for public comment its recommended procedural revisions to the proposed rule. The Commission believes that modifications made to the proposed rule reflect the logical outgrowth of the proposed rule based on the public comments received by the Commission.

C. Technical Concerns

1. Category and Impact Magnitude Definitions

Concerns. Many commenters expressed concern that the category definitions and the impact-significance definitions were ambiguous and appeared somewhat interconnected. The EPA expressed concern that mitigation of adverse impacts was not addressed adequately.

Commenters expressed a number of concerns about the use of the applicability categories and the magnitude-level categories. With respect to the applicability categories, concerns ranged from a general concern that Category 1 precludes or hinders public

involvement in an issue at the time of the plant-specific review to specific concerns about the technical adequacy of the analysis supporting a Category 1 finding for an issue. Several commenters believed that the definitions create confusion, especially as to whether the finding of small impact and Category 1 are interdependent. The GEIS appears to use Category 1 and "small" interchangeably. Concern was also expressed that the requirement to consider mitigative actions was inadequately addressed in the draft GEIS and proposed rule.

Response. To reduce potential confusion over the definitions, the use of the categories, and the treatment of mitigation within the context of the categorization scheme, the NRC has revised the definitions to eliminate any ambiguity as to how they are used. Further, the GEIS has been modified to clearly state the reasons behind the category and magnitude findings.

In order to facilitate understanding of the modifications to the GEIS, the previous approach is discussed as follows. In the proposed rule and the draft GEIS, findings about the environmental impact associated with each issue were divided into three categories of applicability to individual plant reviews. These categories were:

- Category 1: A generic conclusion on the impact has been reached for all affected nuclear power plants.
- Category 2: A generic conclusion on the impact has been reached for affected nuclear power plants that fall within defined bounds.
- Category 3: A generic conclusion on the impact was not reached for any affected nuclear power plants.

The significance of the magnitude of the impact for each issue was expressed as one of the three following levels.

- *Small* impacts are so minor that they warrant neither detailed investigation nor consideration of mitigative actions when such impacts are negative.
- *Moderate* impacts are likely to be clearly evident and usually warrant consideration of mitigation alternatives when such impacts are negative.
- *Large* impacts involve either a severe penalty or a major benefit, and mitigation alternatives are always considered when such impacts are negative.

With respect to the categories of applicability, under the proposed rule applicants would have:

- (1) Not provided additional analyses of Category 1 issues;
- (2) Not provided additional analyses if their plant falls within the bounds

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defined in the rule for a Category 2 issue;

(3) Provided additional plant-specific analyses if their plant does not fall within the bounds defined in the rule for a Category 2 issue; and

(4) Provided plant-specific analyses of Category 3 issues.

In order to address the comments on these magnitude and category definitions, the GEIS has been modified to clearly state the reasons behind the category and magnitude findings.

The revised definitions are listed below.

- **Category 1:** For the issue, the analysis reported in the Generic Environmental Impact Statement has shown:

(1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristic;

(2) A single significance level (i.e., small, moderate, or large) has been assigned to the impacts (except for collective off site radiological impacts from the fuel cycle and from high level waste and spent fuel disposal); and

(3) Mitigation of adverse impacts associated with the issue has been considered in the analysis and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.

The generic analysis of the issue may be adopted in each plant-specific review. Issues for which the impact was found to be favorable were also defined to be Category 1 issues.

- **Category 2:** For the issue, the analysis reported in the GEIS has shown that one or more of the criteria of Category 1 cannot be met and, therefore, additional plant-specific review is required.

If, for an environmental issue, the three Category 1 criteria apply to all plants, that issue is Category 1 and the generic analysis should be used in a license renewal review for all plant applications. If the three Category 1 criteria apply to a subset of plants that are readily defined by a common plant characteristic, notably the type of cooling system, the population of plants is partitioned into the set of plants with the characteristic and the set without the characteristic. For the set of plants with the characteristic, the issue is Category 1 and the generic analysis should be used in the license renewal review for those plants. For the set of plants without the characteristic, the issue is Category 2 and a site-specific analysis for that issue will be performed

as part of the license renewal review.

The review of a Category 2 issue may focus on the particular aspect of the issue that causes the Category 1 criteria not to be met. For example, severe accident mitigation under the issue "severe accidents" is the focus for a plant-specific review because the other aspects of the issue, specifically the offsite consequences, have been adequately addressed in the GEIS. With the revised definitions, the two issues previously designated as Category 3 are now designated Category 2. For an issue to be a Category 1, current mitigation practices and the nature of the impact were considered and a determination was made that it is unlikely that additional measures will be sufficiently beneficial. In the GEIS, in discussing the impacts for each issue, consideration was given to what is known about current mitigation practices.

The definitions of the significance level of an environmental impact have been revised to make the consideration of the potential for mitigating an impact separate from the analysis leading to a conclusion about the significance level of the impact. Further, the significance level of an impact is now more clearly tied to sustaining specific attributes of the affected resource that are important to its viability, health or usefulness. General definitions of small, moderate and large significance levels are given below. These definitions are adapted to accommodate the resource attributes of importance for each of the environmental issues in the GEIS. The definition of "small" clarifies the meaning of the term as it applies to radiological impacts. The definition of "small" in the proposed rule did not logically apply to such impacts.

The general definitions of significance level are:

- **Small:** For the issue, environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purposes of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered small.

- **Moderate:** For the issue, environmental effects are sufficient to alter noticeably but not to destabilize important attributes of the resource.

- **Large:** For the issue, environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The discussion of each environmental issue in the GEIS includes an explanation of how the significance category was determined. For issues in

which probability of occurrence is a key consideration (i.e., accident consequences), the probability of occurrence has been factored into the determination of significance. The determination of the significance category was made independently of the consideration of the potential benefit of additional mitigation.

The major concerns (organized by topical areas) about the environmental issues examined in the draft GEIS and the NRC staff's response to those concerns are summarized next.

2. Surface Water Quality

Concern. Several commenters expressed concerns related to the National Pollutant Discharge Elimination System (NPDES) permitting process for surface water discharge. They believe that the NRC may have overlooked its legal obligation to comply with Section 401 of the Clean Water Act (CWA). Their recommendations included withholding approval for license renewal until a facility has complied with Section 401 and treating license renewal as an opportunity for a new NEPA review. On the other hand, other commenters recommended decoupling the NRC relicensing process from the NPDES permitting process.

Response. In issuing individual license renewals, the Commission will comply, as has been its practice, with the provisions of Section 401 of the Federal Water Pollution Control Act (see 10 CFR 51.45(d) and 51.71(c)). In addition, pursuant to Section 511(c) of the Federal Water Pollution Control Act of 1972, the Commission cannot question or reexamine the effluent limitations or other requirements in permits issued by the relevant permitting authorities. Nevertheless, compliance with the environmental quality standards and requirements of these permits does not negate the requirement for the Commission to consider all environmental effects of the proposed action. Accordingly, the Commission has not only taken existing permits into account in its analysis of the water quality impacts of license renewal but has also considered information on actual operating impacts collected from individual plants, State and Federal regulatory agencies, and published literature. As a result of this analysis, the Commission has concluded that the environmental impacts on surface water quality are small for those effluents subject to existing permit or certification requirements. A total decoupling of the license renewal process and the NPDES permitting process is not appropriate because, for

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issues with incomplete Clean Water Act determinations, the NRC cannot complete its weighing and balancing of impacts without independently addressing the issues.

Concern. Several commenters raised concerns that various issues within the Surface Water Quality topic should be Category 2 or 3 issues. These included water use conflicts as experienced in Arizona and the Midwest, thermal stratification and salinity gradients associated with once-through cooling systems, and the toxicity of biofouling compounds.

Response. Regarding the water use conflicts, the NRC has considered the impacts of water use during the renewal period and has concluded that these impacts are small for plants with a once-through cooling system and that this is a Category 1 issue for those plants. However, this issue is designated Category 2 for plants with cooling towers and cooling ponds because, for those plants, the impacts might be moderate (they could also be small). In either case, pursuant to 10 CFR 51.45(d), an applicant for license renewal must identify and indicate in its environmental report the status of State and local approvals regarding water use issues. For those reactor sites where thermal stratification or salinity gradient was found to be the most pronounced, the issues were reviewed during preparation of the GEIS and found to be acceptable by the States within the NPDES process. No change in the categorization in the GEIS would be required. Similarly, the NPDES permit for a facility establishes allowable discharges, including biocides. The NRC has no indication that residual environmental impacts would occur as a result of license renewal activities at any nuclear plant site other than perhaps water use conflicts arising at plants with cooling ponds or cooling towers using make-up water from a small river with low flow. For those plants, this issue is Category 2.

3. Aquatic Ecology

Concern. A number of comments regarding the ecological impact of cooling water withdrawal from aquatic bodies were received. Specific concerns included fish kills associated with the entrainment and impingement of fish within once-through and cooling pond cooling systems, the use of chlorine and molluscicides to control mussel and clam growth, and the long-term effects of heavy metal discharges from plants with copper-nickel condenser tubes. Another commenter noted that license extension affords the opportunity to review the intake and discharge

configuration of plant cooling water systems, since the best available technology that is economically available may be different given the additional 20 years of plant operating life.

Response. The Commission has considered the impacts of license renewal on aquatic ecology and, in doing so, has reviewed existing NPDES permits and other information. Based on this analysis, the Commission has concluded that these impacts are small with the exception that plants with once-through cooling and cooling ponds may have larger effects associated with entrainment of fish and shellfish in early life stages, impingement, and heat shock. Agencies responsible for existing permits are not constrained from reexamining the permit issues if they have reason to believe that the basis for their issuance is no longer valid. The Commission does not have authority under NEPA to impose an effluent limitation other than those established in permits issued pursuant to the Clean Water Act. The problem of the long-term effects of heavy metal discharges from plants with copper-nickel condenser tubes has been found at only one plant. The affected condenser tubes have been replaced with tubing of a more corrosion-resistant material.

Concern. A commenter pointed out that the issue of riparian zones should be addressed in the GEIS because the vegetation region along a water course can be affected by water withdrawal and is important in maintaining the habitat.

Response. The NRC agrees with the importance of addressing the impacts of license renewal on the riparian habitat. The final GEIS provides a discussion of the riparian habitat as an important resource and the potential effects of consumptive water use on riparian zones.

4. Groundwater Use and Quality

Concern. Several commenters indicated that groundwater issues should be reviewed on a site-specific basis because of groundwater use conflicts (in particular, the effect on aquifer recharge of using surface water for cooling water), opportunities for saltwater intrusion, and concerns over tritium found in wells at one site. On the other hand, a commenter requested that the issue of groundwater use for cooling tower makeup water be changed from Category 2 to Category 1 because the issue is based solely on data from Ranney wells at the Grand Gulf Nuclear Station, where tests have shown that the elevation of the water plain around Grand Gulf is not dropping.

Response. Based on consideration of comments, the issue of groundwater use conflicts resulting from surface water withdrawals for cooling tower makeup water or cooling ponds is now Category 2 for plants withdrawing surface water from small water bodies during low flow conditions. The GEIS has identified a potential reduction in aquifer recharge as a result of competing water use. These conflicts are already a concern at two closed-cycle nuclear power plants. The NRC does not agree that saltwater intrusion should be considered a Category 2 issue. When saltwater intrusion has been a problem, the major cause has been the large consumption of groundwater by agricultural and municipal users. Groundwater consumption by nuclear power plants is small by comparison and does not contribute significantly to the saltwater intrusion problem. With regard to traces of tritium found in the groundwater at one nuclear power plant, the tritium was attributed to a modification in the plant's inlet and discharge canal that did not take into consideration a unique situation in topology and groundwater flow. The releases were minor and the situation has been corrected.

Regarding the issue of the use of groundwater for cooling water makeup, the NRC has designated this issue as Category 2 even though only the Grand Gulf Nuclear Station is currently using Ranney wells to withdraw groundwater. This water intake does not conflict with other groundwater uses in the area. It is not possible to predict whether or not water use conflicts will occur at the Grand Gulf facility in the future. It is also not possible to determine the significance of the environmental impacts associated with Ranney well use at other nuclear plants that may choose to adopt this method in the future.

5. Terrestrial Ecology

Concern. Several commenters recommended that the issue of bird mortality resulting from collisions with transmission lines, towers, or cooling towers be characterized as a Category 2 issue. Such a characterization would provide for a review of mitigation at those plants with cooling towers that do not have illumination and for power plant transmission lines that transect major flyways or that cross wetlands used by large concentrations of birds.

Response. The NRC does not agree with this recommendation. The GEIS cites several studies that conclude that bird mortalities resulting from collision with transmission lines, towers, or cooling towers are not significantly

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reducing bird populations. Mitigation measures in place, such as safety lights, were found adequate and additional measures were not warranted. Therefore, the issue remains a Category 1 issue because refurbishment will not involve construction of any additional transmission lines or natural draft cooling-towers.

Concern. One commenter expressed concern that the GEIS analysis of land use did not adequately encompass the impact of onsite spent fuel storage on land use and that the Category 1 finding is questionable. A specific concern was the potential need for the construction of additional spent fuel storage facilities associated with the license renewal term, along with their associated impacts on the terrestrial environment.

Response. The NRC does not agree that there is a need to change the Category 1 determination for onsite land use. Waste management operations could require the construction of additional storage facilities and thus adversely affect land use and terrestrial ecology. However, experience has shown that the land requirements would be relatively small (less than 9 acres), impacts to land use and terrestrial ecology would also be relatively small, and the land that may be used is already possessed by the applicant; thus, its basic use would not be altered. Onsite land use is Category 1. Terrestrial ecology with disturbance of sensitive habitat is treated as a separate issue and is Category 2.

6. Human Health

Concern. In the human health section of the GEIS, the radiological impacts of plant refurbishment and continued operations during the license renewal term to workers and the general public were examined. Several commenters indicated that it was inappropriate to compare the radiation exposures associated with license renewal to natural background levels. These commenters believed that the appropriate argument should be that the risks associated with the additional exposures are so small that no additional mitigative measures are required.

Response. The NRC agrees that the assessment of radiation exposure should not be simply a comparison with background radiation. In response to comments on the draft generic environmental impact statement and the proposed rule, the standard defining a small radiological impact has changed from a comparison with background radiation to sustained compliance with the dose and release limits applicable to the various stages of the fuel cycle. This

change is appropriate and strengthens the criterion used to define a small environmental impact for the reasons that follow. The Atomic Energy Act requires the Nuclear Regulatory Commission to promulgate, inspect and enforce standards that provide an adequate level of protection of the public health and safety and the environment. The implementation of these regulatory programs provides a margin of safety. A review of the regulatory requirements and the performance of facilities provides the bases to project continuation of performance within regulatory standards. For the purposes of assessing radiological impacts, the Commission has concluded that impacts are of small significance if doses to individuals and releases do not exceed the permissible levels in the Commission's regulations.

With respect to whether additional mitigative measures are required, it should be noted that in 10 CFR parts 20 and 50 there are provisions that radiological impacts associated with plant operation be reduced to levels as low as reasonably achievable (ALARA).

Concern. Several commenters indicated that the GEIS needs a broader treatment of uncertainty as it relates to human health issues.

Response. The NRC agrees that there is considerable uncertainty associated with health effects, especially at low occupational and public dose levels, and particularly with respect to electromagnetic fields. Health effect estimates from radiation exposures are based on the best scientific evidence available and are considered to be conservative estimates. Several sections of the GEIS have been expanded to more thoroughly explain how predicted impacts could be affected by changes in scientific information or standards.

Concern. One commenter indicated that, in the GEIS and the proposed rule, risk coefficients should have been used for chemicals and radiation to obtain upper bound risk estimates of cancer incidence.

Response. The NRC does not agree with this comment. In making comparisons of alternatives, comparisons of the central or best estimates of impacts are consistent with NEPA requirements because they provide the fairest determination. The GEIS is written using current, Commission-approved risk estimators.

Concern. Two commenters expressed concern regarding the GEIS conclusion that the impact of radiation exposure to the public is small, citing a study done by the Massachusetts Department of Public Health (MDPH). This study concluded that adults who live within

10 miles of the Pilgrim Nuclear Power Plant have a risk of contracting leukemia four times greater than other individuals.

Response. The NRC staff reviewed the MDPH study and compared it with various other studies. The results of the study have been contradicted by a National Cancer Institute (NCI) study entitled "Cancer in Populations Living Near Nuclear Facilities" (July 1990). The NCI study, which included the Pilgrim plant in its analysis, found no reason to suggest that nuclear facilities may be linked causally with excess deaths from leukemia or from other cancers. The findings of the NCI study are consistent with the findings of several similar epidemiological studies in foreign countries and with the latest conclusions of expert bodies such as the National Research Council's Committee on the Biological Effects of Ionizing Radiation. The NRC continues to base its assessment of the health effects of ionizing radiation on the overall body of scientific knowledge and on the recommendations of expert groups.

7. Socioeconomics

Concern. A commenter concerned with historic preservation pointed out that this issue must be addressed through compliance with the National Historic Preservation Act (NHPA) and cannot be resolved generically.

Response. The NRC agrees with this comment. Historical and archaeological impacts have been changed from a Category 1 to a Category 2 issue (that is, it must be evaluated site-specifically). Consultation with State historical preservation offices and other Government agencies, as required by NHPA, must be undertaken to determine whether protected historical or archaeological resources are in areas that might be disturbed during refurbishment activities and operation during the renewal period.

Concern. Several commenters indicated that transportation issues associated with refurbishment activities should be changed from Category 3 to Category 2 because the impacts will be insignificant in the majority of cases. One recommendation was to use a level of service (LOS) determination for specific plants as the bounding criterion. The analysis would require that LOS be determined for that part of the refurbishment period during which traffic not related to the plant is expected to be the heaviest. Another recommendation was to establish bounding criteria based on past major routine outages.

Response. The NRC agrees that use of the LOS approach may prove to be

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acceptable. Transportation still must be reviewed on a plant-specific basis, that is, it is a Category 2 issue (based on the revised definition).

Concern. There were recommendations to make the housing impacts during refurbishment a Category 1 issue instead of Category 2. One commenter noted that the construction period data used in the analysis appears to overestimate the impact on housing.

Response. The NRC does not agree that this should be a Category 1 issue. Although negligible housing impacts are anticipated for most license renewals, significant housing impacts have occurred during a periodic plant outage at one of the case plants studied for the analysis. This issue is now a Category 2 issue because moderate and large impacts on housing are possible depending on local conditions (e.g., areas with extremely slow population growth or areas with growth control measures that limit housing development).

8. The Uranium Fuel Cycle and Solid Waste Management

Concern. Wide-ranging concerns were expressed in the comments on the proposed rule and the draft GEIS about the treatment of storage and disposal of low-level waste (LLW), mixed waste, spent fuel, nonradiological waste, and the transportation of fuel and waste to and from nuclear power plants as a consequence of license renewal. Concern was expressed about the uncertain availability of disposal facilities for LLW, mixed waste, and spent fuel; the prospect of generation and onsite storage of an additional 20 years output of waste; and the resulting pressure that would be put on the States to provide LLW disposal facilities. Various commenters expressed concern about the adequacy of the treatment of the cost of waste management and the implications for the economic viability of license renewal. Numerous comments were provided on updating and clarifying data on waste management presented in the draft GEIS. Finally, various questions were raised about the applicability of Table S-3 (10 CFR 51.51 Uranium fuel cycle environmental data—Table S-3, Table of Uranium Fuel Cycle Environmental Data) to the management of waste generated as a result of license renewal.

With regard to spent fuel, several commenters expressed concern that dry cask storage is not a proven technology and that onsite storage of spent fuel from an additional 20 years of plant operation will present environmental and safety problems. Therefore, onsite

storage of spent fuel should be considered on a site-specific basis within a plant license renewal review.

Response. The Commission acknowledges that there is uncertainty in the schedule of availability of disposal facilities for LLW, mixed waste, and spent fuel. However, the Commission believes that there is sufficient understanding of and experience with the storage of LLW, mixed waste, and spent fuel to conclude that the waste generated at any plant as a result of license renewal can be stored safely and without significant environmental impacts before permanent disposal. In addition, the Commission concluded that the classification of storage and ultimate disposal as a Category 1 issue is appropriate because States are proceeding, albeit slowly, with the development of new disposal facilities; LLW and mixed waste have been and can be safely stored at reactor sites until new disposal capacity becomes available. Analyses to support this conclusion are presented in Chapter 6 of the final GEIS (NUREG-1437). The following summary of the responses to comments emphasizes the main features of these analyses.

In the draft GEIS, the environmental data in Table S-3 were discussed with respect to applicability during the license renewal period and supplemented with an analysis of the radiological release and dose commitment data for radon-222 and technetium-99. The proposed rule would have had this discussion apply to each plant at the time of its review for license renewal.

Further, in the draft GEIS, Chapter 6, "Solid Waste Management," covered the generation of LLW, mixed waste, spent fuel, and nonradiological waste as a result of license renewal; the transportation of the radiological waste; and the environmental impacts of waste management, including storage and disposal. The findings that were to have been codified in the rule were that, for nonradiological waste, mixed waste, spent fuel, and transportation, the environmental impacts are of small significance and that the analysis in the GEIS applies to each plant (Category 1). For LLW, the finding that would have been codified in the rule was that, if an applicant does not have access to a low-level radioactive waste disposal facility through a low-level waste compact or an unaffiliated State, the applicant must present plans for interim waste storage with an assessment of potential ecological habitat destruction caused by construction activities (Category 2).

In response to the questions about the applicability of Table S-3 to the management of waste associated with license renewal and to the various comments challenging the treatment of the several forms of waste in the draft GEIS and in the proposed rule, the discussion of Table S-3 has been moved from Section 4.8 of the draft GEIS to Chapter 6 of the final GEIS in order to provide a more integrated assessment of the environmental impacts associated with waste management as a consequence of license renewal. Also in response to various comments, the discussion of Table S-3 and of each of the types of waste has been expanded.

Supplemental data are presented in Chapter 6 of the final GEIS in order to extend the coverage of the environmental impacts of the uranium fuel cycle presented in the current Table S-3 and of transportation of radioactive waste presented in the current Table S-4 to radon-222, technetium-99, higher fuel enrichment, and higher fuel burnup. In part, the current Table S-3 and the data supplementing it cover environmental impacts of:

(1) Onsite storage of spent fuel assemblies in pools for 10 years, packaging and transportation to a Federal repository, and permanent disposal; and

(2) Short-term storage onsite of LLW, packaging and transportation to a land-burial facility, and permanent disposal.

The following conclusions have been drawn with regard to the environmental impacts associated with the uranium fuel cycle.

The radiological and nonradiological environmental impacts of the uranium fuel cycle have been reviewed. The review included a discussion of the values presented in Table S-3, an assessment of the release and impact of ^{222}Rn and of ^{99}Tc , and a review of the regulatory standards and experience of fuel cycle facilities. For the purpose of assessing the radiological impacts of license renewal the Commission uses the standard that the impacts are of small significance if doses and releases do not exceed permissible levels in the Commission's regulations. Given the available information regarding the compliance of fuel cycle facilities with applicable regulatory requirements, the Commission has concluded that, other than for the disposal of spent fuel and high-level waste, these impacts on individuals from radioactive gaseous and liquid releases will remain at or below the Commission's regulatory limits. Accordingly, the Commission concludes that offsite radiological impacts of the fuel cycle (individual effects from other than the disposal of

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spent fuel and high-level waste) are small. ALARA efforts will continue to apply to fuel cycle activities. This is a Category 1 issue.

The radiological impacts of the uranium fuel cycle on human populations over time (collective effects) have been considered within the framework of Table S-3. The 100 year environmental dose commitment to the U.S. population from the fuel cycle, high level waste and spent fuel disposal excepted, is calculated to be about 14,800 man-rem, or 12 cancer fatalities, for each additional 20 year power reactor operating term. Much of this, especially the contribution of radon releases from mines and tailing piles, consists of tiny doses summed over large populations. This same dose calculation can theoretically be extended to include many tiny doses over additional thousands of years as well as doses outside the U.S. The result of such a calculation would be thousands of cancer fatalities from the fuel cycle, but this result assumes that even tiny doses have some statistical adverse health effect which will not ever be mitigated (for example no cancer cure in the next thousand years), and that these dose projections over thousands of years are meaningful. However these assumptions are questionable. In particular, science cannot rule out the possibility that there will be no cancer fatalities from these tiny doses. For perspective, the doses are very small fractions of regulatory limits, and even smaller fractions of natural background exposure to the same populations. No standards exist that can be used to reach a conclusion as to the significance of the magnitude of the collective radiological effects. Nevertheless, some judgement as to the regulatory NEPA implication of this issue should be made and it makes no sense to repeat the same judgement in every case. The Commission concludes that these impacts are acceptable in that these impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the collective effects of the fuel cycle, this issue is considered Category 1. For other Category 1 issues, the impacts will be considered at the individual renewal stage as a means of judging the total impact of an individual license renewal decision. However, the Commission has already judged the impact of collective effects of the fuel cycle as part of this rule.

There are no current regulatory limits for off-site releases of radionuclides for the current candidate repository site. However if we assume that limits are developed along the lines of the 1995 National Academy of Sciences (NAS) report, and that in accordance with the Commission's Waste Confidence Decision, a repository can and likely will be developed at some site which will comply with such limits, peak doses to virtually all individuals will be 100 millirem per year or less. However, while the Commission has reasonable confidence that these assumptions will prove correct there is considerable uncertainty since the limits are yet to be developed, no repository application has been completed or reviewed, and uncertainty is inherent in the models used to evaluate possible pathways to the human environment. The National Academy report indicated that 100 millirem per year should be considered as a starting point for limits for individual doses, but notes that some measure of consensus exists among national and international bodies that the limits should be a fraction of the 100 millirem per year. The lifetime individual risk from 100 millirem per year dose limit is about 3×10^{-3} . Doses to populations from disposal cannot now (or possibly ever) be estimated without very great uncertainty. Estimating cumulative doses to populations over thousands of years is more problematic. The likelihood and consequences of events that could seriously compromise the integrity of a deep geologic repository were evaluated by the Department of Energy in the "Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste," October 1980. The evaluation estimated the 70-year whole-body dose commitment to the maximum individual and to the regional population resulting from several modes of breaching a reference repository in the year of closure, after 1,000 years, after 100,000 years, and after 100,000,000 years. The release scenarios covered a wide range of consequences from the limited consequences of humans accidentally drilling into a waste package in the repository to the catastrophic release of the repository inventory by a direct meteor strike. Subsequently, the NRC and other Federal agencies have expended considerable effort to develop models for the design and for the licensing of a high level waste repository, especially for the candidate repository at Yucca Mountain. More meaningful estimates of doses to population may be possible in the future

as more is understood about the performance of the proposed Yucca Mountain repository. Such estimates would involve very great uncertainty, especially with respect to cumulative population doses over thousands of years. The standard proposed by the NAS is a limit on maximum individual dose. The relationship of potential new regulatory requirements, based on the NAS report, and cumulative population impacts has not been determined, although the report articulates the view that protection of individuals will adequately protect the population for a repository at Yucca Mountain. However, EPA's generic repository standards in 40 CFR part 191 generally provide an indication of the order of magnitude of cumulative risk to population that could result from the licensing of a Yucca Mountain repository, assuming the ultimate standards will be within the range of standards now under consideration. The standard in 40 CFR part 191 protects the population by imposing "containment requirements" that limit the cumulative amount of radioactive material released over 10,000 years. The cumulative release limits are based on EPA's population impact goal of 1,000 premature cancer deaths world-wide for a 100,000 metric tonne (MTHM) repository.

Nevertheless, despite all the uncertainty surrounding the effects of the disposal of spent fuel and high-level waste, some judgement as to the regulatory NEPA implications of these matters should be made and it makes no sense to repeat the same judgement in every case. Even taking the uncertainties into account, the Commission concludes that these impacts are acceptable in that these impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the impacts of spent fuel and high-level waste disposal, this issue is considered Category 1. Excepting the collective effects previously discussed, for other Category 1 issues, the impacts will be considered at the individual renewal stage as a means of judging the total impact of an individual license renewal decision. However, the Commission has already judged the impacts of high level waste disposal as part of this rule.

With respect to the nonradiological impact of the uranium fuel cycle, data concerning land requirements, water requirements, the use of fossil fuel, gaseous effluent, liquid effluent, and tailings solutions and solids, all listed in Table S-3, have been reviewed to

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determine the significance of the environmental impacts of a power reactor operating an additional 20 years. The nonradiological impacts attributable to the relicensing of an individual power reactor are found to be of small significance. License renewal of an individual plant is so indirectly connected to the operation of fuel cycle facilities that it is meaningless to address the mitigation of impacts identified above. This is a Category 1 issue.

Table S-3 does not take into account long-term onsite storage of LLW, mixed waste, and storage of spent fuel assemblies onsite for longer than 10 years, nor does it take into account impacts from mixed waste disposal. The environmental impacts of these aspects of onsite storage are also addressed in Chapter 6 of the final GEIS and the findings are included in the final rule in Table B-1 of appendix B to 10 CFR part 51.

Chapter 6 of the GEIS discusses the impacts of offsite disposal of LLW and mixed waste and concludes that impacts will be small. The conclusion that impacts will be small is based on the regulations and regulatory programs in place (e.g., 10 CFR part 61 for LLW and 40 CFR parts 261, 264, and 268 for hazardous waste), experience with existing sites, and the expectation that NRC, EPA, and the States will ensure that disposal will occur in compliance with the applicable regulations.

The Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA) made the States responsible for the disposal of commercially generated LLW. At present, 9 compacts have been formed, representing 42 States. The Texas Compact (Texas, Maine, and Vermont) is pending before the U.S. Congress.

New LLW disposal facilities in the host States of California, North Carolina, and Texas are forecast to be operational between 1997 and 1998. Facilities in the host States of Connecticut, Illinois, Massachusetts, Nebraska, New Jersey, Pennsylvania, and New York are scheduled for operation between 1999 and 2002. Envirocare, in Utah, takes limited types of waste from certain generators.

There are uncertainties in the licensing process and in the length of time needed to resolve technical issues, but in NRC's view there are no unsolvable technical issues that will inevitably preclude successful development of new sites or other off-site disposal capacity for LLW by the time they will be needed. For example, in California, the proposed Ward Valley LLW disposal facility was unexpectedly delayed by the need to resolve technical

issues raised by several scientists independent of the project after the license was issued. These issues were recently reviewed and largely resolved by an independent review group. In North Carolina, Texas, and Nebraska, the license application review period has been longer than is required by the LLRWPA, but progress continues to be made.

The State's LLW responsibilities include providing disposal capacity for mixed LLW. Mixed waste disposal facility developers face the same types of challenges as LLW site developers plus difficulties with dual regulation and small volumes. However, in NRC's view there are no technical reasons why offsite disposal capacity for all types of mixed waste should not become available when needed. NRC and EPA have developed guidance on the siting of mixed waste disposal facilities as well as a conceptual design for a mixed waste disposal facility. A disposal facility for certain types of mixed waste is operated by Envirocare in Utah. States have begun discussions with DOE about accepting commercial mixed waste for treatment and disposal at DOE facilities. Although these discussions have yet to result in DOE accepting commercial mixed waste at DOE facilities, it appears that progress is being made toward DOE's eventual acceptance of some portion of commercial mixed waste at its facilities.

While the NRC understands that there have been delays and that uncertainties exist such as those just discussed, the Commission concludes that there is reasonable assurance that sufficient LLW and mixed LLW disposal capacity will be made available when needed so that facilities can be decommissioned consistent with NRC decommissioning requirements. This conclusion, coupled with the expected small impacts from both storage and disposal justify classification of LLW and mixed waste disposal as Category 1 issues.

The GEIS addresses the matter of extended onsite storage of both LLW and mixed waste from refurbishment and operations for a renewal period of up to 20 years. Summary data are provided and radiological and nonradiological environmental impacts are addressed. The analysis considers:

- (1) The volumes of LLW and mixed waste that may be generated from license renewal;
- (2) Specific requirements under the existing regulatory framework;
- (3) The effectiveness of the regulations in maintaining low average doses to members of the public and to workers; and

(4) Nonradiological impacts, including land use, fugitive dust, air quality, erosion, sedimentation, and disturbance of ecosystems.

In addition, under 10 CFR 50.59, licensees are allowed to make changes to their facilities as discussed in the final safety analysis report without NRC permission if the evaluation indicates that a change in the technical specifications is not required or that an unreviewed safety question does not exist. Licensees would have to ensure that any new LLW activities would not represent an unreviewed safety question for routine operations or for conditions that might arise from potential accidents. Both onsite and offsite impacts would have to be considered. If a LLW or mixed waste activity fails either of the two tests in 10 CFR 50.59, a license amendment is required. Subject to the two possible review requirements just noted, the Commission finds that continued onsite storage of both LLW and mixed waste resulting from license renewal will have small environmental impacts and will require no further review within the license renewal proceeding.

The GEIS addresses extended onsite storage of spent fuel during a renewal period of up to 20 years. The Commission has studied the safety and environmental effects of the temporary storage of spent fuel after cessation of reactor operation and has published a generic determination of no significant environmental impact (10 CFR 51.23). The environmental data on storing spent fuel onsite in a fuel pool for 10 years before shipping for offsite disposal have been assessed and reported in NUREG-0116, "The Environmental Survey of the Reprocessing and Waste Management Portions of the LWR Fuel Cycle" (October 1976), and published in the Commission's regulations (10 CFR 51.51). Environmental assessments (EA) for expanding the fuel pool storage capacity have been conducted for numerous plants. In each case, a finding of no significant environmental impact was reached.

Radioactive exposures, waste generation, and releases were evaluated and found to be small. The only nonradiological effluent from waste storage is additional heat from the plant that was found to have a negligible effect on the environment. Accidents were evaluated and were found to have insignificant effects on the environment. Dry cask storage at an independent spent fuel storage installation (ISFSI) is another technology used to store under a general license. The environmental impacts of allowing onsite dry cask storage under a general license were

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assessed in an EA and found to be insignificant. Further, the Commission has conducted EAs for seven specific licensed ISFSIs and has reached a finding of no significant environmental impact for each site. Each EA addressed the impacts of construction, use, and decommissioning. Potential impacts that were assessed include radiological impacts, land use, terrestrial resources, water use, aquatic resources, noise, air quality, socioeconomic, radiological impacts during construction and routine operation, and radiological impacts of off-normal events and accidents. Trends in onsite spent fuel storage capacity and the volume of spent fuel that will be generated during an additional 20 years of operation are considered in the GEIS. Spent fuel storage capacity requirements can be adequately met by ISFSIs without significant environmental impacts. The environmental impacts of onsite storage of spent fuel at all plants have been adequately assessed in the GEIS for the purposes of an environmental review and agency decision on renewal of an operating license; thus, no further review within the license renewal proceeding is required. This provision is relative to the license renewal decision and does not alter existing Commission licensing requirements specific to on-site storage of spent fuel.

The environmental impacts from the transportation of fuel and waste attributable to license renewal are found to be small when they are within the range of impacts of parameters identified in Table S-4. The estimated radiological effects are within regulatory standards. The nonradiological impacts are those from periodic shipments of fuel and waste by individual trucks or rail cars and thus would result in infrequent and localized minor contributions to traffic density. Programs designed to further reduce risk, which are already in place, provide for adequate mitigation. Recent, ongoing efforts by the Department of Energy to study the impacts of waste transportation in the context of the multi-purpose canister (see, 60 FR 45147, August 30, 1995) suggest that there may be unresolved issues regarding the magnitude of cumulative impacts from the use of a single rail line or truck route in the vicinity of the repository to carry all spent fuel from all plants. Accordingly, NRC declines to reach a Category 1 conclusion on this issue at this time. Table S-4 should continue to be the basis for case-by-case evaluation of transportation impacts of fuel and waste until such time as a detailed analysis of the environmental

impacts of transportation to the proposed repository at Yucca Mountain becomes available.

9. Accidents

Concern. Several commenters expressed concerns regarding the appropriateness of the severe accident determination in the GEIS and with the treatment of severe accident mitigation design alternatives (SAMDA) for license renewal. A group of commenters identified areas of concern that they believe justify severe accidents being classified as a Category 3 issue. The areas included seismic risks to nuclear power plants and site-specific evacuation risks. Several commenters questioned whether the analyses of the environmental impacts of accidents were adequate to make a Category 1 determination for the issue of severe accidents. The contention is that a bounding analysis would be established only if plant-specific analyses were performed for every plant, which was not the case. Instead, the GEIS analysis made use of a single generic source term for each of the two plant types.

Response. The Commission believes that its analysis of the impacts of severe accidents is appropriate. The GEIS provides an analysis of the consequences of severe accidents for each site in the country. The analysis adopts standard assumptions about each site for parameters such as evacuation speeds and distances traveled, and uses site-specific estimates for parameters such as population distribution and meteorological conditions. These latter two factors were used to evaluate the exposure indices for these analyses. The methods used result in predictions of risk that are adequate to illustrate the general magnitude and types of risks that may occur from reactor accidents. Regarding site-evacuation risk, the radiological risk to persons as they evacuate is taken into account within the individual plant risk assessments that form the basis for the GEIS. In addition, 10 CFR Part 50 requires that licensees maintain up-to-date emergency plans. This requirement will apply in the license renewal term as well as in the current licensing term.

As was done in the GEIS analysis, the use of generic source terms (one set for PWRs and another for BWRs) is consistent with the past practice that has been used and accepted by the NRC for individual plant Final Environmental Impact Statements (FEISs). The purpose of the source term discussion in the GEIS is to describe whether or not new information on source terms developed after the completion of the most recent FEISs

indicates that the source terms used in the past under-predict environmental consequences. The NRC has concluded that analysis of the new source term information developed over the past 10 years indicates that the expected frequency and amounts of radioactive release under severe accident conditions are less than that predicted using the generic source terms. A summary of the evolution of this research is provided in NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants" (December 1990), and its supporting documentation. Thus, the analyses performed for the GEIS represent adequate, plant-specific estimates of the impacts from severe accidents that would generally over-predict, rather than under-predict, environmental consequences. Therefore, the GEIS analysis of the impacts of severe accidents for license renewal is retained and is considered applicable to all plants.

Based on an evaluation of the comments, the Commission has reconsidered its previous conclusion in the draft GEIS concerning site-specific consideration of severe accident mitigation. The Commission has determined that a site-specific consideration of alternatives to mitigate severe accidents will be required at the time of license renewal unless a previous consideration of such alternatives regarding plant operation has been included in a final environmental impact statement or a related supplement. Because the third criterion required to make a Category 1 designation for an issue requires a generic consideration of mitigation, the issue of severe accidents must be reclassified as a Category 2 issue that requires a consideration of severe accident mitigation alternatives, provided this consideration has not already been completed. The Commission's reconsideration of the issue of severe accident mitigation for license renewal is based on the Commission's NEPA regulations that require a consideration of mitigation alternatives in its environmental impact statements (EISs) and supplements to EISs, as well as a previous court decision that required a review of severe mitigation alternatives (referred to as SAMDA) at the operating license stage. See, *Limerick Ecology Action v. NRC*, 869 F.2d 719 (3d Cir. 1989).

Although the Commission has considered containment improvements for all plants pursuant to its Containment Performance Improvement (CPI) program, which identified potential containment improvements for site-specific consideration by licensees,

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and the Commission has additional ongoing regulatory programs whereby licensees search for individual plant vulnerabilities to severe accidents and consider cost-beneficial improvements, these programs have not yet been completed. Therefore, a conclusion that severe accident mitigation has been generically considered for license renewal is premature.

The Commission believes it unlikely that any site-specific consideration of severe accident mitigation alternatives for license renewal will identify major plant design changes or modifications that will prove to be cost-beneficial for reducing severe accident frequency or consequences. This Commission expectation regarding severe accident mitigation improvements is based on the analyses performed to date that are discussed below.

The Commission's CPI program examined each of the five U.S. containment types to determine potential failure modes, potential plant improvements, and the cost-effectiveness of such improvements. As a result of this program, only a few containment improvements were found to be potentially beneficial and were either identified for further NRC research or for individual licensee evaluation.

In response to the *Limerick* decision, an NRC staff consideration of SAMDAs was specifically included in the Final Environmental Impact Statement for the Limerick 1 and 2 and Comanche Peak 1 and 2 operating license reviews, and in the Watts Bar Supplemental Final Environmental Statement for an operating license. The alternatives evaluated in these analyses included the items previously evaluated as part of the CPI Program, as well as improvements identified through other risk studies and analyses. No physical plant modifications were found to be cost-beneficial in any of these severe accident mitigation considerations. Only plant procedural changes were identified as being cost-beneficial. Furthermore, the Limerick analysis was for a high-population site. Because risk is generally proportional to the population around a plant, this analysis suggests that other sites are unlikely to identify significant plant modifications that are cost-beneficial.

Additionally, each licensee is performing an individual plant examination (IPE) to look for plant vulnerabilities to internally initiated events and a separate IPE for externally initiated events (IPEEE). The licensees were requested to report their results to the Commission. Seventy-eight IPE submittals were received and seventy-

five IPEEE submittals will be received, covering all operating plants in the United States. These examinations consider potential improvements to reduce the frequency or consequences of severe accidents on a plant-specific basis and essentially constitute a broad search for severe accident mitigation alternatives. The NRC staff is conducting a process review of each plant-specific IPE submittal and IPEEE submittal. To date, all IPE submittals have received a preliminary review by the NRC with 46 out of 78 completed; for the IPEEE submittals, 24 of the 75 are under review. These IPEs have resulted in a number of plant procedural or programmatic improvements and some plant modifications that will further reduce the risk of severe accidents.

In conclusion, the GEIS analysis of severe accident consequences and risk is adequate, and additional plant-specific analysis of these impacts is not required. However, because the ongoing regulatory program related to severe accident mitigation (i.e., IPE and IPEEE) has not been completed for all plants and consideration of severe accident mitigation alternatives has not been included in an EIS or supplemental EIS related to plant operations for all plants, a site-specific consideration of severe accident mitigation alternatives is required at license renewal for those plants for which this consideration has not been performed. The Commission expects that if these reviews identify any changes as being cost beneficial, such changes generally would be procedural and programmatic fixes, with any hardware changes being only minor in nature and few in number. NRC staff considerations of severe accident mitigation alternatives have already been completed and included in an EIS or supplemental EIS for Limerick, Comanche Peak, and Watts Bar. Therefore, severe accident mitigation alternatives need not be reconsidered for these plants for license renewal.

Based on the fact that a generic consideration of mitigation is not performed in the GEIS, a Category 1 designation for severe accidents cannot be made. Therefore, the Commission has reclassified severe accidents as a Category 2 issue, requiring only that alternatives to mitigate severe accidents be considered for those plants that have not included such a consideration in a previous EIS or supplemental EIS. The Commission notes that upon completion of its IPE/IPEEE program, it may review the issue of severe accident mitigation for license renewal and consider, by

separate rulemaking, reclassifying severe accidents as a Category 1 issue.

The Commission does not intend to prescribe by rule the scope of an acceptable consideration of severe accident mitigation alternatives for license renewal nor does it intend to mandate consideration of alternatives identical to those evaluated previously. In general, the Commission expects that significant efficiency can be gained by using site-specific IPE and IPEEE results in the consideration of severe accident mitigation alternatives. The IPEs and IPEEEs are essentially site-specific PRAs that identify probabilities of core damage (Level 1 PRA) and include assessments of containment performance under severe accident conditions that identify probabilities of fission product releases (Level 2). As discussed in Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities" (November 23, 1988), one of the important goals of the IPE and IPEEE was to reduce the overall probabilities of core damage and fission product releases as necessary by modifying hardware and procedures to help prevent or mitigate severe accidents.

Although Level 3 PRAs have been used in SAMDA analyses to generate site-specific offsite dose estimates so that the cost-benefit of mitigation alternatives could be determined, the Commission does not believe that site-specific Level 3 PRAs are required to determine whether an alternative under consideration will provide sufficient benefit to justify its cost. Licensees can use other quantitative approaches for assigning site-specific risk significance to IPE results and judging whether a mitigation alternative provides a sufficient reduction in core damage frequency (CDF) or release frequency to warrant implementation. For example, a licensee could use information provided in the GEIS analysis (exposure indices, wind frequencies, and demographics) to translate the dominant contributors to CDF and the large release frequencies from the IPE/IPEEE results into dose estimates so that a cost-benefit determination can be performed. In some instances, a consideration of the magnitude of reduction in the site-specific CDF and release frequencies alone (i.e., no conversion to a dose estimate) may be sufficient to conclude that no significant reduction in off-site risk will be provided and, therefore, implementation of a mitigation alternative is not warranted. The Commission will review each severe accident mitigation consideration provided by a license renewal applicant on its merits and determine whether it

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constitutes a reasonable consideration of severe accident mitigation alternatives.

10. Decommissioning

Concern. Several commenters requested further clarification of the NRC's position regarding decommissioning requirements, especially whether the total impacts address returning the site to green field conditions.

Response. The decommissioning chapter of the GEIS analyzes the impact that an additional 20 years of plant operation would have on ultimate plant decommissioning; it neither serves as the generic analysis of the environmental impacts associated with decommissioning nor establishes decommissioning requirements. An analysis of the expected impacts from plant decommissioning was previously provided in NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities" (August 1988). The analysis in the GEIS for license renewal examines the physical requirements and attendant effects of decommissioning after a 20-year license renewal compared with decommissioning at the end of 40 years of operation and finds little difference in effects.

With respect to returning a site to green field condition, the Commission defines decommissioning as the safe removal of a nuclear facility from service, the reduction of residual contamination to a level that permits release of the property for unrestricted use, and termination of the license. Therefore, the question of restoring the land to a green field condition, which would require additional demolition and site restoration beyond addressing residual contamination and radiological effects, is outside the current scope of the decommissioning requirements. Moreover, consistent with the Commission's conclusion that license renewal is not expected to affect future decommissioning, any requirement relative to returning a site to a green field and the attendant effects of such a requirement would also not be affected by an additional 20 years of operation. Therefore, the issue of returning a site to pre-construction conditions is beyond the scope of license renewal review.

Concern. Several commenters expressed concern that, because a residual radioactivity rule is still not in place, the LLW estimates should be reexamined.

Response. The NRC does have criteria in place for the release of reactor facilities to unrestricted access following decommissioning. These include the guidance in Regulatory

Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors" (which provides guidance for surface contamination), dose rate limits from gamma-emitting radionuclides included in plant technical specifications, and requirements for keeping residual contamination as low as reasonably achievable (ALARA) as included in 10 CFR part 20. These criteria were used in developing NUREG-0586, the final GEIS on decommissioning of nuclear facilities, which was published in August of 1988. One conclusion from the analysis conducted for NUREG-0586 was that waste volumes from decommissioning of reactors are not highly sensitive to the radiological criteria. A proposed rule dated August 22, 1994, would codify radiological criteria for unrestricted release of reactors and other nuclear facilities and for termination of a facility license following decommissioning. NUREG-1496, the draft GEIS for the proposed rule on radiological criteria, included analyses of a range of radiological release criteria and confirmed the earlier conclusions that waste volumes from decommissioning of reactors are not sensitive to the residual radiological criteria within the range likely to be selected. This range included residual dose levels comparable to the radiological criteria currently being used for reactor decommissioning. Based on the insensitivity of the waste volume from reactor decommissioning to the radiological criteria, the Commission continues to believe, as concluded in the decommissioning section of the GEIS, that the contribution to environmental impacts of decommissioning from license renewal are small. The Commission further concludes that these impacts are not expected to change significantly as a result of the ongoing rulemaking. Therefore, the determinations in the GEIS remain appropriate.

11. Need for Generating Capacity

Concern. In addition to the major procedural concern discussed earlier about the treatment of need for generating capacity, several commenters raised concerns about the power demand projections used in the GEIS. Some commenters noted that any determination of need quickly becomes dated and, therefore, the demand for and the source of electrical power at the time of license renewal cannot be accurately predicted at this time. Moreover, they believe that the NRC's analysis is not definitive enough to remain unchallenged for 40 years. Another commenter criticized the analysis because it focused only on

energy requirements without making appropriate distinctions between energy and peak capacity requirements, plant availability, and capacity factors.

Response. The NRC has determined that a detailed consideration of the need for generating capacity is inappropriate in the context of consideration of the environmental impacts of license renewal. Thus, the NRC will limit its NEPA review of license renewal applications to the consideration of the environmental impacts of license renewal compared with those of other available generating sources. Hence, the concerns regarding demand projections used in the draft GEIS are no longer an issue and they have been removed from the GEIS.

12. Alternatives to License Renewal

Concern. In addition to the procedural concern discussed earlier about the treatment of alternative energy sources as a Category 1 issue, several commenters expressed concerns about the comparison and analysis of alternative energy sources, as well as the economic analysis approach used in the draft GEIS. Consistent with their arguments against the Category 1 designation of alternatives, the commenters questioned the approach adopted in the GEIS of comparing only single alternative energy sources to license renewal. They believe that the NRC's failure to consider a mix of alternatives ignores the potential for other alternative sources of power that are available to different regions of the nation, such as demand-side management, cogeneration, purchased power from Canada, biomass, natural gas, solar energy, and wind power. They also indicated that this approach neglects a utility's ability to serve its customers with a portfolio of supply that is based on load characteristics, cost, geography, and other considerations, and fails to consider the collective impact of the alternatives. Furthermore, the possible technological advances in renewable energy sources over the next 40 years are not addressed.

One commenter argued that designating the issue of alternative energy sources as Category 1 allows a license renewal applicant not to consider the additional requirement of economic threshold analysis. Relative to the economic analysis of the alternatives to license renewal, another commenter questioned the proposed requirement for the license renewal applicant to demonstrate that the "replacement of equivalent generating capacity by a coal-fired plant has no demonstrated cost advantage over the individual nuclear power plant license renewal."

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According to the commenter, this requirement would force the applicant to perform an economic analysis of an alternative to license renewal. The commenter further argued that NEPA does not require an economic consideration.

Response. In response to these concerns, the final rule no longer requires a cost comparison of alternative energy sources relative to license renewal. Furthermore, the alternative energy sources discussed in the final GEIS include energy conservation and energy imports as well as the other sources discussed by the commenters. An analysis of the environmental impacts of alternative energy sources is included in the GEIS but is not codified in 10 CFR part 51.

The NRC believes that its consideration of alternatives in the GEIS is representative of the technologies available and the associated environmental impacts. With regard to consideration of a mix of alternative sources, the Commission recognizes that combinations of various alternatives may be used to replace power generation from license renewal.

13. License Renewal Scenario

Concern. Several commenters raised concerns related to the license renewal scenario evaluation methodology as implemented in the GEIS. The fundamental issues were the degree of conservatism built into the scenario and the appropriateness of an upper bound type approach in characterizing the refurbishment activities (and associated costs) in light of NEPA requirements to determine reasonable estimates of the environmental impacts of Federal actions.

Regarding the concerns that the refurbishment schedules and scenarios developed for the GEIS were too conservative, several commenters indicated that many of the activities slated for completion during the extended refurbishment before license renewal would actually be completed by many facilities during the course of the current licensing term. The effect of having only one major outage instead of leveling work over three or four outages could lead to an over-estimate of the refurbishment activities and costs that any particular plant would expect to see.

Response. In response to this concern, the NRC has revised the GEIS to include two license renewal program scenarios. The first scenario refers to a "typical" license renewal program and is intended to be representative of the type of programs that many plants seeking license renewal might implement. The

second scenario retains the original objective of establishing an upper bound of the impacts likely to be generated at any particular plant. The typical scenario is useful for estimating impacts at plants that have been well maintained and have already undertaken most major refurbishment activities necessary for operation beyond the current licensing term. The conservative scenario estimates continue to be useful for estimating the maximum impacts likely to result from license renewal.

The revised approach of providing two separate license renewal scenarios also alleviates the concern about the use of a bounding scenario for license renewal activities. The NRC acknowledges that some applicants for license renewal may not be required to perform certain major refurbishment or replacement activities and, therefore, may have fewer or shorter outages. However, the two scenarios described in the GEIS are neither unrealistic nor overconservative in representing the range of activities that could be expected for license renewal and the possible schedule for performing these activities.

14. Environmental Justice

On February 11, 1994, the President issued Executive Order (E.O.) 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" (59 FR 7629, February 16, 1994). This order requires each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations. The Commission will endeavor to carry out the measures set forth in the executive order by integrating environmental justice into NRC's compliance with the National Environmental Policy of 1969 (NEPA), as amended. E.O. 12898 was issued after publication of the proposed rule and the receipt of comments on the proposed rule. As a result, no comments were received regarding environmental justice reviews for license renewal. Therefore, a brief discussion of this issue relative to license renewal is warranted.

As called for in Section 1-102 of E.O. 12898, the EPA established a Federal interagency working group to, among other things, " * * * provide guidance to Federal agencies or criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and

low-income populations * * *." The CEQ was assigned to provide this guidance to enable agencies to better comply with E.O. 12898. Until the CEQ guidance is received, the Commission intends to consider environmental justice in its evaluations of individual license renewal applications. Greater emphasis will be placed on discussing impacts on minority and low-income populations when preparing NEPA documents such as EISs, supplemental EISs, and, where appropriate, EAs. Commission requirements regarding environmental justice reviews will be reevaluated and may be revised after receipt of the CEQ guidance.

IV: Discussion of Regulatory Requirements

A. General Requirements

In this final rule, the regulatory requirements for performing a NEPA review for a license renewal application are similar to the NEPA review requirements for other major plant licensing actions. Consistent with the current NEPA practice for major plant licensing actions, this amendment to 10 CFR Part 51 requires the applicant to submit an environmental report that analyzes the environmental impacts associated with the proposed action, considers alternatives to the proposed action, and evaluates any alternatives for reducing adverse environmental effects. Additionally, the amendment requires the NRC staff to prepare a supplemental environmental impact statement for the proposed action; issue the statement in draft for public comment, and issue a final statement after considering public comments on the draft.

The amendment deviates from NRC's current NEPA review practice in some areas. First, the amendment codifies certain environmental impacts associated with license renewal that were analyzed in NUREG-1437, "Generic Environmental Impact Statement for License Renewal at Nuclear Plants" (May 1996). Accordingly, absent new and significant information, the analyses for certain impacts codified by this rulemaking need only be incorporated by reference in an applicant's environmental report for license renewal and in the Commission's (including NRC staff, adjudicatory officers, and the Commission itself) draft and final SEIS and other environmental documents developed for the proceeding. Secondly, the amendment reflects the Commission's decision to limit its NEPA review for license renewal to a consideration of the environmental

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effects of the proposed action and alternatives to the proposed action. Finally, the amendment contains the decision standard that the Commission will use in determining the acceptability of the environmental impacts of individual license renewals.

The Commission and the applicant will consider severe accident mitigation alternatives to reduce or mitigate environmental impacts for any plant for which severe accident mitigation alternatives have not been previously considered in an environmental impact statement or related supplement or in an environmental assessment. The Commission has concluded that, for license renewal, the issues of need for power and utility economics should be reserved for State and utility officials to decide. Accordingly, the NRC will not conduct an analysis of these issues in the context of license renewal or perform traditional cost-benefit balancing in license renewal NEPA reviews. Finally, in a departure from the approach presented in the proposed rule, this final rule does not codify any conclusions regarding the subject of alternatives. Consideration of and decisions regarding alternatives will occur at the site-specific stage. The discussion below addresses the specific regulatory requirements of this amendment and any conforming changes to 10 CFR part 51 to implement the Commission's decision to eliminate cost-benefit balancing from license renewal NEPA reviews.

B. The Environmental Report

1. Environmental Impacts of License Renewal

Through this final rule, the NRC has amended 10 CFR 51.53 to require an applicant for license renewal to submit an environmental report with its application. This environmental report must contain an analysis of the environmental impacts of renewing a license, the environmental impacts of alternatives, and mitigation alternatives. In preparing the analysis of environmental impacts contained in the environmental report, the applicant should refer to the data provided in appendix B to 10 CFR part 51, which has been added to NRC's regulations as part of this rulemaking. The applicant is not required to provide an analysis in the environmental report of those issues identified as Category 1 issues in Table B-1 in Appendix B. For those issues identified as Category 2 in Table B-1, the applicant must provide a specified additional analysis beyond that contained in Table B-1. In this final rule, 10 CFR 51.53(c)(3)(ii) specifies the

subject areas of the analysis that must be addressed for the Category 2 issues.

Pursuant to 10 CFR 51.45(c), 10 CFR 51.53(c)(2) requires the applicant to consider possible actions to mitigate the adverse impacts associated with the proposed action. This consideration is limited to designated Category 2 matters. Pursuant to 10 CFR 51.45(d), the environmental report must include a discussion of the status of compliance with applicable Federal, State, and local environmental standards. Also, 10 CFR 51.53(c)(2) specifically excludes from consideration in the environmental report the issues of need for power, the economic costs and benefits of the proposed action, economic costs and benefits of alternatives to the proposed action, or other issues not related to environmental effects of the proposed action and associated alternatives. In addition, the requirements in 10 CFR 51.45 are consistent with the exclusion of economic issues in 10 CFR 51.53(c)(2).

2. Consideration of Alternatives

Pursuant to 10 CFR 51.45(c), 10 CFR 51.53(c)(2) requires the applicant to consider the environmental impacts of alternatives to license renewal in the environmental report. The treatment of alternatives in the environmental report should be limited to the environmental impacts of such alternatives.

The amended regulations do not require a discussion of the economic costs and benefits of these alternatives in the environmental report for the operating license renewal stage except as necessary to determine whether an alternative should be included in the range of alternatives considered or whether certain mitigative actions are appropriate. The analysis should demonstrate consideration of a reasonable set of alternatives to license renewal. In preparing the alternatives analysis, the applicant may consider information regarding alternatives in NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (May 1996).

The Commission has developed a new decision standard to be applied in environmental impact statements for license renewal as discussed in Section IV.C.2. The amended regulations for license renewal do not require applicants to apply this decision standard to the information generated in their environmental report (although the applicant is not prohibited from doing so if it desires). However, the NRC staff will use the information contained in the environmental report in preparing the environmental impact statement

upon which the Commission will base its final decision.

3. Consideration of Mitigation Alternatives

Consistent with the NRC's current NEPA practice, an applicant must include a consideration of alternatives to mitigate adverse environmental impacts in its environmental report. However, for license renewal, the Commission has generically considered mitigation for environmental issues associated with renewal and has concluded that no additional site-specific consideration of mitigation is necessary for many issues. The Commission's consideration of mitigation for each issue included identification of current activities that adequately mitigate impacts and evaluation of other mitigation techniques that might or might not be warranted, depending on such factors as the size of the impact and the cost of the technique. The Commission has considered mitigation for all impacts designated as Category 1 in Table B-1. Therefore, a license renewal applicant need not address mitigation for issues so designated.

C. Supplemental Environmental Impact Statement

This amendment also requires that the Commission prepare a supplemental environmental impact statement (SEIS), consistent with 10 CFR 51.20(b)(2). This statement will serve as the Commission's independent analysis of the environmental impacts of license renewal as well as a comparison of these impacts to the environmental impacts of alternatives. This document will also present the preliminary recommendation by the NRC staff regarding the proposed action. Consistent with the revisions to 10 CFR 51.45 and 51.53 discussed above in regard to the applicant's environmental report, this rulemaking revises portions of 10 CFR 51.71 and 51.95 to reflect the Commission's approach to addressing the environmental impacts of license renewal.

The issues of need for power, the economic costs and benefits of the proposed action, and economic costs and benefits of alternatives to the proposed action are specifically excluded from consideration in the supplemental environmental impact statement for license renewal by 10 CFR 51.95(c), except as these costs and benefits are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation. The supplemental

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environmental impact statement does not need to discuss issues other than environmental effects of the proposed action and associated alternatives. This rule amends the requirements in 10 CFR 51.71 (d) and (e) so that they are consistent with the exclusion of economic issues in 10 CFR 51.95(c). Additionally, 10 CFR 51.95 has been amended to allow information from previous NRC site-specific environmental reviews, as well as NRC final generic environmental impact statements, to be referenced in supplemental environmental impact statements.

1. Public Scoping and Public Comments on the SEIS

Consistent with NRC's current NEPA practice, the Commission will hold a public meeting in order to inform the local public of the proposed action and receive comments. In addition, the SEIS will be issued in draft for public comment in accordance with 10 CFR 51.91 and 51.93. In both the public scoping process and the public comment process, the Commission will accept comments on all previously analyzed issues and information codified in Table B-1 of appendix B to 10 CFR part 51 and will determine whether these comments provide any information that is new and significant compared with that previously considered in the GEIS. If the comments are determined to provide new and significant information bearing on the previous analysis in the GEIS, these comments will be considered and appropriately factored into the Commission's analysis in the SEIS. Public comments on the site-specific additional information provided by the applicant regarding Category 2 issues will be considered in the SEIS.

2. Commission's Analysis and Preliminary Recommendation

The Commission's draft SEIS will include its analysis of the environmental impacts of the proposed license renewal action and the environmental impacts of the alternatives to the proposed action. With the exception of offsite radiological impacts for collective effects and the disposal of spent fuel and high level waste, the Commission will integrate the codified environmental impacts of license renewal as provided in Table B-1 of appendix B to 10 CFR part 51 (supplemented by the underlying analyses in the GEIS), the appropriate site-specific analyses of Category 2 issues, and any new issues identified during the scoping and public comment

process. The results of this integration process will be utilized to arrive at a conclusion regarding the sum of the environmental impacts associated with license renewal. These impacts will then be compared, quantitatively or qualitatively as appropriate, with the environmental impacts of the considered alternatives. The analysis of alternatives in the SEIS will be limited to the environmental impacts of these alternatives and will be prepared in accordance with 10 CFR 51.71 and subpart A of appendix A to 10 CFR part 51. The analysis of impacts of alternatives provided in the GEIS may be referenced in the SEIS as appropriate. The alternatives discussed in the GEIS include a reasonable range of different methods for power generation. The analysis in the draft SEIS will consider mitigation actions for designated Category 2 matters and will consider the status of compliance with Federal, State, and local environmental requirements as required by 10 CFR 51.71(d). Consistent with 10 CFR 51.71(e), the draft supplemental environmental impact statement must contain a preliminary recommendation regarding license renewal based on consideration of the information on the environmental impacts of license renewal and of alternatives contained in the SEIS. In order to reach its recommendation, the NRC staff must determine whether the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable. This decision standard is contained in 10 CFR 51.95(c)(4).

3. Final Supplemental Environmental Impact Statement

The Commission will issue a final supplemental environmental impact statement for a license renewal application in accordance with 10 CFR 51.91 and 51.93 after considering the public comments related to new issues identified from the scoping and public comment process, Category 2 issues, and any new and significant information regarding previously analyzed and codified Category 1 issues. Pursuant to 10 CFR 51.102 and 51.103, the Commission will provide a record of its decision regarding the environmental impacts of the proposed action. In making a final decision, the Commission must determine whether the adverse environmental impacts of license renewal (when compared with the environmental impacts of other energy generating alternatives) are so great that preserving the option of

license renewal for energy planning decisionmakers would be unreasonable.

D. NEPA Review for Activities Outside NRC License Renewal Approval Scope

The Commission wishes to clarify that any activity that requires NRC approval and is not specifically required for NRC's action regarding management of the effects of aging on certain passive long-lived structures and components in the period of extended operation must be subject to a separate NEPA review. The actions subject to NRC approval for license renewal are limited to continued operation consistent with the plant design and operating conditions for the current operating license and to the performance of specific activities and programs necessary to manage the effects of aging on the passive, long-lived structures and components identified in accordance with 10 CFR part 54. Accordingly, the GEIS does not serve as the NEPA review for other activities or programs outside the scope of NRC's part 54 license renewal review. The separate NEPA review must be prepared regardless of whether the action is necessary as a consequence of receiving a renewed license, even if the activity were specifically addressed in the GEIS. For example, the environmental impacts of spent fuel pool expansion are addressed in the GEIS in the context of the environmental consequences of approving a renewed operating license, rather than in the context of a specific application to expand spent fuel pool capacity, which would require a separate NEPA review.

These separate NEPA reviews may reference and otherwise use applicable environmental information contained in the GEIS. For example, an EA prepared for a separate spent fuel pool expansion request may use the information in the GEIS to support a finding of no significant impact.

V. Availability of Documents

The principal documents supporting this supplementary information are as follows:

(1) NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (May 1996).

(2) NUREG-1529, "Public Comments on the Proposed 10 CFR part 51 Rule for Renewal of Nuclear Power Plant Operating Licenses and Supporting Documents; Review of Concerns and NRC Staff Response" (May 1996).

(3) NUREG-1440, "Regulatory Analysis of Amendments to Regulations Concerning the Environmental Review

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for Renewal of Nuclear Power Plant Operating Licenses" (May 1996).

Copies of all documents cited in the supplementary information are available for inspection and for copying for a fee in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. In addition, copies of NRC final documents cited here may be purchased from the Superintendent of Documents, U.S. Government Printing Office, PO Box 37082, Washington, DC 20013-7082. Copies are also available for purchase from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

VI. Submittal of Comments in an Electronic Format

Commenters are encouraged to submit, in addition to the original paper copy, a copy of their letter in an electronic format on IBM PC DOS-compatible 3.5- or 5.25-inch, double-sided, double-density (DS/DD) diskettes. Data files should be provided in Wordperfect 5.1 or later version of Wordperfect. ASCII code is also acceptable or, if formatted text is required, data files should be provided in IBM Revisable-Form Text Document Content Architecture (RFT/DCA) format.

VII. Finding of No Significant Environmental Impact: Availability

The NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation. This action is procedural in nature and pertains only to the type of environmental information to be reviewed.

VIII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150-0021.

The public reporting burden for this collection of information is estimated to average 4,200 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6F33), U.S.

Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at BJS1@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0021), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

IX. Regulatory Analysis

The Commission has prepared a regulatory analysis for this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The two alternatives considered were:

- (A) Retaining the existing 10 CFR part 51 review process for license renewal, which requires that all reviews be on a plant-specific basis; and
- (B) Amending 10 CFR part 51 to allow a portion of the environmental review to be conducted on a generic basis.

The conclusions of the regulatory analysis show substantial cost savings of alternative (B) over alternative (A). The analysis, NUREG-1440, is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Copies of the analysis are available as described in Section V.

X. Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant impact on a substantial number of small entities. The final rule states the application procedures and environmental information to be submitted by nuclear power plant licensees to facilitate NRC's obligations under NEPA. Nuclear power plant licensees do not fall within the definition of small businesses as defined in Section 3 of the Small Business Act, 15 U.S.C. 632, or the Commission's Size Standards, April 11, 1995 (60 FR 18344).

XI. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

XII. Backfit Analysis

The NRC has determined that these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1); therefore, a backfit analysis need not be prepared.

List of Subjects in 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the National Environmental Policy Act of 1969, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 51.

61 FR 37351

Published 7/18/96

Effective date delayed to 9/5/96

Comment period extended to 8/5/96

10 CFR Part 51

RIN 3150-AD63

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses; Delay of Effective Date and Extension of Comment Period

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; delay of effective date and extension of comment period.

SUMMARY: On June 5, 1996, a final amendment to 10 CFR Part 51 was published in the Federal Register (61 FR 28467), to establish new requirements for the environmental review of applications to renew the operating licenses of nuclear power plants. The Nuclear Regulatory Commission (NRC) solicited public comment on this rule for a period of 30 days, ending July 5, 1996. Absent a determination by the NRC that the rule should be modified, based on comments received, the final rule was to be effective on August 5, 1996. In response to a request to extend the comment period, the NRC is issuing this notice extending the comment period. The effective date is also delayed to accommodate the extended comment period.

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DATES: Absent a determination by the NRC that the rule should be modified, based on comments received, the final rule shall be effective on September 5, 1996. The new comment period expires August 5, 1996.

ADDRESSES: Send comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Docketing and Services Branch, or hand deliver comments to the Office of the Secretary, One White Flint North 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 pm on Federal workdays. Copies of comments received and all documents cited in the supplementary information section of 61 FR 28467 may be examined at the NRC Public Document Room, 2120 L Street NW, (Lower Level) Washington, DC, between the hours of 2:45 am and 4:15 pm on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Donald P. Cleary, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-415-6263; e-mail DPC@nrc.gov.

Dated at Rockville, Maryland this 12th day of July, 1996.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

61 FR 39278
Published 7/29/96
Effective 8/28/96

*Decommissioning of Nuclear Power
Reactors*

See Part 50 Statements of Consideration

61 FR 39555
Published 7/30/96
Effective 9/5/96
Comment period expires 8/5/96

10 CFR Part 51
RIN 3150-AD63

**Environmental Review for Renewal of
Nuclear Power Plant Operating
Licenses; Correction**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule: Correction.

SUMMARY: This document corrects a final rule appearing in the *Federal Register* on June 5, 1996 (61 FR 28467),

that establishes new requirements for the environmental review of applications to renew the operating licenses of nuclear power plants. This action is necessary to restore text that was inadvertently omitted in the printing process and to provide a specific publication date for a related issuance.

DATES: Absent a determination by the NRC that the rule should be modified, based on comments received, the final rule should be effective on September 5, 1996. The new comment period expires August 5, 1996.

ADDRESSES: Send comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Docketing and Service Branch, or hand deliver comments to the Office of the Secretary, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 pm on Federal workdays. Copies of comments received and all documents cited in the supplementary information section of 61 FR 28467 may be examined at the NRC Public Document Room, 2120 L Street NW, (Lower Level) Washington, DC, between the hours of 2:45 p.m. and 4:15 p.m. on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Donald P. Cleary, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-6263; e-mail DPC@nrc.gov.

1. On page 28483, second paragraph, line 9, the text in parentheses (xxxx 1996) should read (May 1996).

2. On page 28484, in (B)(2), second paragraph, last line, the text in parentheses (xxxx 1996) should read (May 1996).

§ 51.95 [Corrected]

3. On page 28489, in § 51.95(c), last line, the text in parentheses (xxxx 1996) should read (May 1996).

Appendix B [Corrected]

4. On page 28492, in Table B-1 under the heading "Ground-water Use and Quality," insert the following text beneath the fourth and last issue.

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GROUND-WATER USE AND QUALITY

Issue	Category ²	Findings ³
Ground-water use conflicts (Ranney wells)	2	SMALL, MODERATE, OR LARGE. Ranney wells can result in potential ground-water depression beyond the site boundary. Impacts of large ground-water withdrawal for cooling tower makeup at nuclear power plants using Ranney wells must be evaluated at the time of application for license renewal. See § 51.53(c)(3)(ii)(C).
Ground-water quality degradation (Ranney wells).	1	SMALL. Ground-water quality at river sites may be degraded by induced infiltration of poor-quality river water into an aquifer that supplies large quantities of reactor cooling water. However, the lower quality infiltrating water would not preclude the current uses of ground water and is not expected to be a problem during the license renewal term.
Ground-water quality degradation (saltwater intrusion).	1	SMALL. Nuclear power plants do not contribute significantly to saltwater intrusion.
Ground-water quality degradation (cooling ponds in salt marshes).	1	SMALL. Sites with closed-cycle cooling ponds may degrade ground-water quality. Because water in salt marshes is brackish, this is not a concern for plants located in salt marshes.
Ground-water quality degradation (cooling ponds at inland sites).	2	SMALL, MODERATE, OR LARGE. Sites with closed-cycle cooling ponds may degrade ground-water quality. For plants located inland, the quality of the ground water in the vicinity of the ponds must be shown to be adequate to allow continuation of current uses. See § 51.53(c)(3)(ii)(D).

Note: Footnote at end of table.

5. On page 28496, in Footnote 1, the text in parentheses (xxxx 1996) should read May 1996.

Dated at Rockville, MD, this 3rd day of July, 1996.

For the Nuclear Regulatory Commission.

Michael T. Lesar,

Chief, Rules Review Section, Rules Review and Directives Branch.

61 FR 43406
Published 8/22/96
Effective 10/21/96
Comment period expires 9/23/96

*Deletion of Outdated References and
Minor Change*

See Part 2 Statements of Consideration

61 FR 66537
Published 12/18/96
Effective 1/17/97

10 CFR Part 51

RIN 3150-AD63

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations on the environmental review of applications to renew the operating licenses of nuclear power plants to make minor clarifying and conforming changes and add language inadvertently omitted from Table B-1 of the rulemaking published June 5, 1996 (61 FR 28467). This final rule also presents

an analysis of the comments received and the staff responses to the comments requested in the final rule published June 5, 1996. After reviewing the comments received, the NRC has determined that no substantive changes to the final rule are warranted.

EFFECTIVE DATE: This final rule shall be effective on January 17, 1997.

ADDRESSES: Copies of comments received and all documents cited in the supplementary information section of 61 FR 28467 may be examined at the NRC Public Document Room, 2120 L Street NW, (Lower Level) Washington, DC, between the hours of 7:45 am and 4:15 pm on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Donald P. Cleary, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-415-6263; e-mail DPC@nrc.gov.

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SUPPLEMENTARY INFORMATION:

I. Introduction

The Commission has amended its environmental protection regulations in 10 CFR Part 51 to improve the efficiency of the process of environmental review for applicants seeking to renew a nuclear power plant operating license for up to an additional 20 years. The final rule containing these amendments was published in the *Federal Register* on June 5, 1996 (61 FR 28467). The amendments are based on the analyses reported in NUREG-1437, "Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants" (May 1996). At several stages in the development of the rule the Commission sought public comment by means of notices in the *Federal Register* and public workshops. The history of this rulemaking is summarized in the June 5, 1996 notice (61 FR 28469). Prior to the final rule becoming effective, the Commission believed it appropriate to seek comments on the treatment of low-level waste storage and disposal impacts, the cumulative radiological effects from the uranium fuel cycle, and the effects from the disposal of high-level waste and spent fuel. In a supplemental notice published on July 18, 1996 (61 FR 37351), the Commission extended the comment period for these issues to August 5, 1996, and indicated that the final rule would become effective on September 5, 1996, absent notice from the Commission to the contrary. The Commission has reviewed the comments submitted and finds no need to amend the substantive provisions of the rule.

This final rule amends the June 5, 1996 rule with minor nonsubstantive changes. The changes are: addition of five Ground-water Use and Quality issues inadvertently left out of Table B-1 in the June 5, 1996 notice (see, 61 FR 29278, July 29, 1996); minor conforming changes to reflect recent amendments to §§ 51.53 and 51.95 effected by a separate rulemaking ("Decommissioning of Nuclear Power Reactors," July 29, 1996 (61 FR 39278)); substitution of one sentence under Findings for the issue "Offsite radiological impacts (spent fuel and high-level waste disposal)" in Table B-1, in order to more accurately represent a U.S. Environmental Protection Agency (EPA) regulatory position; a word substitution in 10 CFR 51.53(c)(3)(ii)(M), in order to clarify the information on the environmental effect of transportation of fuel and waste to and from a nuclear power plant that is to be submitted with a license renewal application; and minor clarifying changes to the text in Table B-1

concerning chronic effects of electromagnetic fields.

II. Analysis of Public Comments

A. Commenters.

In response to the *Federal Register* notice for the final rule published on June 5, 1996 (61 FR 28467), 11 organizations and 1 private citizen submitted written comments. The 11 organizations included the EPA; the States of Maryland, Massachusetts, and Vermont; the Nuclear Energy Institute, and 6 licensees. Commenters expressed concerns about specific aspects of the rule and several commenters referred to material in NUREG-1437 which they believe to be inaccurate or ambiguous. Other than one State, the commenters expressed that the rule should be revised to address their concerns. The seven commenters from the nuclear power industry stated that their concerns should be addressed by supplemental rulemaking and should not delay the effective date of the rule as published in 61 FR 28467. The Commission assumes that EPA, two States, and the private individual intend for their concerns to be addressed by revising the final rule and final GEIS now rather than by supplemental rulemaking. These specific concerns and how and when they should be resolved are addressed below.

B. Radioactive Waste Storage and Disposal, and Cumulative Radiological Effects of the Uranium Fuel Cycle.

Comment. The two commenting States expressed concern over the prospect of long-term storage of high-level waste (HLW) at reactor sites. One State also expressed concern over the prospect of long-term storage of low-level waste (LLW) at reactor sites. This State believes that "the Commission should establish a policy which would condition license renewal to a resolution of radioactive waste disposal issues." One State believes that provisions in NRC's regulations for addressing significant new information and the 10-year cycle for reviewing the continued appropriateness of the conclusions codified by the rule are not adequate with respect to the issues of on-site storage and disposal of HLW; and, therefore, site-specific environmental review should be required for these issues, i.e., these issues should be designated Category 2. A third State believes that a Category 1 designation is appropriate for these issues, i.e., findings for the issue codified in the rule may be adopted in site-specific license renewal reviews,

and supports the provision in the rule for periodic evaluation of these issues.

Response. As stated at 61 FR 28477, the Commission acknowledges that there is uncertainty in the schedule of availability of disposal facilities for LLW and HLW. The Commission understands the continuing concern of the States and of the public over the prospects for timely development of waste disposal facilities. The uncertainty in the schedule of availability of disposal facilities is especially of concern because of the waste currently being generated during the initial licensing term of power reactors. The Commission, however, continues to believe that there is sufficient understanding of and experience with the storage of LLW and HLW to conclude that the waste generated at any plant as a result of license renewal can be stored safely and without significant environmental impacts prior to permanent disposal. The Commission believes that conditioning individual license renewal decisions on resolution of radioactive waste disposal issues is not warranted because the Commission has already made a generic determination, codified in 10 CFR 51.23, that spent fuel generated at any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond a license renewal term and that there will be a repository available within the first quarter of the twenty-first century. The waste confidence decision is discussed in Chapter 6 of NUREG-1437, "Generic Environmental Impact Statement for License Renewal for Nuclear Plants," May 1996. The Commission similarly believes that enough is known regarding the effects of permanent disposal to reach the generic conclusion in the rule. The rule is not based on the assumption that Yucca Mountain will be licensed. Also from a regulatory policy perspective, the Commission disagrees with the view of one state that each renewal applicant should come forward with an analysis of the HLW storage and disposal environmental effects. This is a national problem of essentially the same degree of complexity and uncertainty for every renewal application and it would not be useful to have a repetitive reconsideration of the matter.

The Commission further believes that the provisions in the present rule and elsewhere in the Commission's regulations adequately provide for the introduction and consideration of new significant information in license renewal reviews, and that the 10 year review cycle for the rule and the GEIS adequately provides for Commission

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reassessment of the status of LLW and HLW disposal programs. The Commission recognizes that the possibility of significant unexpected events remains open. Consequently, the Commission will review its conclusions on these waste findings should significant and pertinent unexpected events occur (see also, 49 FR 34658 (August 31, 1984)). In view of the Commission's favorable conclusions regarding prospects for safe and environmentally acceptable waste disposal, it sees no need for conditioning licenses as recommended. The Category 1 designations for these three issues [low-level waste storage and disposal, offsite radiological impacts (spent fuel and high-level waste disposal), and on-site spent fuel] in the final rule has not been changed in response to these comments.

Comment. Six industry organizations specifically commented on the treatment of the LLW and HLW issues in 61 FR 28467 and in the GEIS. Except for the treatment of the environmental impacts of transportation of radiological material to and from the plant, the industry commenters agree with the Commission's findings on waste issues. Transportation (radiological and nonradiological environmental impacts) is designated Category 2 in the final rule. This designation requires some additional review of the environmental impacts of transportation.

The industry commenters argue that the requirements for the review of transportation impacts for license renewal described in the final rule are unclear, and that there are good reasons to change the transportation issue from a Category 2 to a Category 1 designation. The requirements for the review of transportation issues in the final rule were found by the commenters to be unclear with respect to (1) the use and legal status of 10 CFR 51.52, Table S-4, in the plant-specific license renewal review; (2) the conditions that must be met before an applicant may adopt Table S-4; and (3) the extent to which the "generic" effects of transporting spent fuel to a high-level waste repository should be considered in a plant-specific license renewal review. In addition, several commenters suggested that DOE should have the responsibility of considering the cumulative environmental impacts from transportation.

Response. The Commission does not believe that changes to the rule in response to industry comments are warranted at this time. However, in order to clarify the rule's requirements, the following guidance is provided on the issue of transportation impacts. As

a result of this rulemaking, 10 CFR 51.53(c)(3)(ii)(M) requires applicants to review the environmental effects of transportation in accordance with § 51.52 (Table S-4) and to discuss the generic and cumulative impacts associated with transportation infrastructure in the vicinity of a high-level waste repository site. The candidate site at Yucca Mountain should be used for the purpose of impact analysis as long as that site is under consideration for licensing. The amendments to 10 CFR Part 51 in this rulemaking do not alter the existing provisions of § 51.52. If an applicant's reactor meets all the conditions in § 51.52(a) the applicant may use the environmental impacts of transportation of fuel and waste to and from the reactor set forth in Summary Table S-4 to characterize the transportation impacts from the renewal of its license.

However, because Table S-4 does not take into account the generic and cumulative (including synergistic) impacts of transportation infrastructure construction and operation in the vicinity of the Yucca Mountain repository site, such information would have to be provided by these applicants.

For reactors not meeting the conditions of § 51.52(a), the applicant must provide a full description and detailed analysis of such environmental effects associated with transportation in accordance with § 51.52(b). Industry commenters pointed out that the conditions in paragraph (a) are not likely to be satisfied by many plants now using higher burn-up fuel. In such cases, applicants may incorporate in their analysis the discussion presented in the GEIS in Section 6.2.3 "Sensitivity to Recent Changes in the Fuel Cycle," and Section 6.3 "Transportation." This category of applicants also would have to consider the generic and cumulative impacts of transportation operation in the vicinity of the Yucca Mountain repository site. These impacts may be attributed to an individual plant on a reactor-year basis.

As part of its efforts to develop regulatory guidance for this rule, the Commission will consider whether further changes to the rule are desirable to generically address: (1) The issue of cumulative transportation impacts and (2) the implications that the use of higher burn-up fuel have for the conclusions in Table S-4. After consideration of these issues, the Commission will determine whether the issue of transportation impacts should be changed to Category 1.

As to the NRC's duty to consider the cumulative transportation impacts of license renewal, the Commission

continues to believe that such analysis is appropriate. The fact that DOE rather than an applicant will have title to spent-fuel and high-level waste when it is transported to a repository and that ultimately DOE must consider the environmental impacts of transportation does not relieve the Commission of the responsibility under the National Environmental Policy Act to consider the impacts of transportation in its environmental review for renewal of an operating license.

Finally, regarding the attribution of transportation impacts between the initial operating license and the renewed license, the allocation of environmental data in § 51.51 and environmental impacts in § 51.52 on the bases of a reference reactor year sets the precedence for allocating generic (common) impacts.

Comment. EPA states that the discussion of the radiological impacts of the uranium fuel cycle (61 FR 28478) requires clarification regarding the collective effects, over time, on human populations.

Response. The Commission believes that the discussion adequately summarizes the potential collective health impacts of the uranium fuel cycle. The following is provided to clarify the specific elements of that discussion. First, an estimate is provided of the 100-year dose commitment to the U. S. population and the estimated cancer fatalities from the uranium fuel cycle that are attributable to each 20-year license renewal. It is then explained that much of the dose to individuals is "tiny" and is attributed to radon releases from mines and tailing piles. Second, it is explained that the dose calculation could be extended to cover populations outside of the U. S. over thousands of years, and that such a calculation would estimate thousands of cancer fatalities. Third, the uncertainty that would be involved in this computation and the conservative nature of the estimates of fatalities are discussed. Views of the scientific community about the possible overestimation of fatalities resulting from the assumptions used are developed in Appendix E, Section E.4.1, of the GEIS. Finally, the discussion points out that no standards exist that can be used to reach a conclusion as to the significance of the magnitude of the collective radiological health effects.

Comment. EPA maintains that natural background radiation should not be used comparatively to judge the significance of additional doses of radiation.

Response. The statement referred to by EPA (61 FR 28478), is intended to

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provide perspective only on the magnitude of the additional dose, not on its significance.

Comment. EPA believes that the GEIS is unclear as to whether occupational doses are measured as the dose received by the average worker or the maximally exposed worker. The NRC should clarify what significance these two distinct measures have with respect to the NRC's regulatory regime for reactor licensing.

Response. Occupational dose limits and the requirement to achieve exposures which are as low as reasonably achievable (ALARA) are codified in the Commission's regulations in 10 CFR Part 20. The dose limits and measured doses correspond to the individual. However, the overall effectiveness of the licensee's ALARA programs are reflected by the average doses received by the population of workers. A detailed discussion of the Commission's radiation protection limits and protection measures is provided in Appendix E of the GEIS. These regulations apply to license renewal activities. The estimates in the GEIS of occupational doses due to license renewal assume continued compliance with 10 CFR Part 20, including both the dose limits and the ALARA requirement.

Comment. EPA disagrees with the Commission's definition of "small" relative to radiological impacts. The Commission's definition is, "For the purpose of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered small." EPA points out that the Commission's regulations permit an upper limit that would exceed the range of $10E-6$ to $10E-4$, established under the Comprehensive Environmental Response, Compensation and Liability Act, for negligibly small lifetime risk. EPA believes that risks falling above this range should not be designated as small or insignificant.

Response. The definition of "small" used for assessing radiological impacts in the GEIS is not synonymous with "negligibly small," which implies that an impact is so insignificant as to be unworthy of consideration. The Commission promotes licensee programs to bring doses below the regulatory limits to "as low as reasonably achievable" (ALARA) through its regulations, 10 CFR 50.36(a), Appendix I to 10 CFR Part 50, and provisions in 10 CFR Part 20. Because ALARA programs continue to be effective, actual doses are far below the regulatory limits, limits that represent a small risk. As the Commission's dose

limits are based on radiation protection standards established by interagency committees and reflects international scientific consensus on the adequacy of protection standards, the Commission chooses to define radiological risk resulting from these standards as being "small."

Comment. EPA takes issue with the Commission's assumptions, in Section 6.2.2.2 of the GEIS, about regulatory limits for off-site releases of radionuclides for the candidate repository at Yucca Mountain. EPA stated that the Commission should not presume that EPA will adopt the National Academy of Science recommendation regarding a 100 millirem annual dose limit. Further, EPA believes that the GEIS should assume a smaller dose limit as a more conservative bounding estimate, consistent with the stated objective of Table S-3 to represent the worst case or bounding estimate of the potential release from the uranium fuel cycle [GEIS page 6-1].

Response. The Commission does not assume that EPA will adopt a 100 millirem annual dose limit. The discussion in Section 6.2.2.2 is clear that this limit is recommended by the Academy as a starting point for consideration, and that there is some measure of consensus among national and international bodies that the limits should be a fraction of the 100 mrem/year. At this time, the Commission is not prepared to speculate as to what the final limit will be.

Comment. EPA states: "The NRC has mis-stated the Agency's expectations regarding the performance of a high-level waste repository, and in doing so has used an inappropriate benchmark for its discussion of acceptable doses to the general public from the disposal of reactor fuel. Table B-1 * * * states that EPA's cumulative release limits (from 40 CFR Part 191) are based on a population impact goal of 1,000 premature cancer deaths in the first 10,000 years after closure of a repository. The table mistakenly equates EPA's standard for releases from a high-level waste repository—an extreme upper limit that would result in 1,000 premature cancer deaths—with EPA's goal or expectation for the performance of such repositories. EPA stated in the promulgation of its high-level waste regulation that a repository for 100,000 metric tonnes of reactor fuel would cause between 10 and 100 such deaths, on the assumption that the repository complies with the NRC's enforceable requirements for engineered barriers

found at 10 CFR Part 60. The Commission should not use 1,000 fatal cancers as a benchmark for repository performance and instead should consider the Agency's stated expectation that a well-constructed, well-sited repository should outperform this level by ten or one-hundred-fold. The same discussion appears in Section 6.2.2.2 of the GEIS on page 6-20 and should also be corrected there."

Response. The Commission agrees that referring to 1,000 premature cancer deaths as an EPA population "impact goal" is misleading. Until final repository release standards are promulgated and health impact estimates are available, the Commission will continue to use 1,000 premature cancer deaths in the first 10,000 years after closure of a repository as an upper bound estimate of cumulative health effects. The following sentence has been substituted in the rule for the one with which EPA disagrees: "Repository performance standards that will be required by EPA are expected to result in releases and associated health consequences in the range between 10 and 100 premature cancer deaths with an upper limit of 1,000 premature cancer deaths world-wide for a 100,000 metric tonne (MTHM) repository."

Comment. EPA states: "The NRC has not adequately justified certain assumptions regarding its analysis of risks from the disposal of spent nuclear (reactor) fuel in the high-level waste repository at Yucca Mountain. The NRC asserts that analyses in the GEIS of health effects from disposal of reactor fuel need not extend beyond 1,000 years, though NRC's own regulations for high-level waste disposal, found at 10 CFR Part 60, contain explicit numerical requirements on releases occurring after the first 1,000 years. An analysis extending over a longer period of time would be more appropriate, such as for 10,000 years as required in EPA's high-level waste standard applicable to sites other than Yucca Mountain."

Response. This comment refers to an NRC staff response (found at NUREG-1529, page C7-3) to a comment made by an EPA participant in the NRC Public Workshop to Discuss License Renewal, held in Arlington, Virginia, November 4 and 5, 1991 (Session 4, page 26). The EPA participant pointed out that in the discussion of the uranium fuel cycle in the draft GEIS, NRC provided estimates of population dose commitments from open-pit uranium mines and stabilized tailings piles for 100, 500 and 1,000 years, but didn't provide long-term estimates for other long-lived materials. The commenter went on to point out

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that in the case of the high-level waste repository these calculations are carried out for 10,000 years, although in his view a calculation of impact should be carried until there is no more impact. The staff response to this comment is intended to point out that the likely radiological impacts attributable to any one nuclear power plant's HLW generated as a result of license renewal are uncertain and are unlikely to be significantly altered by consideration of the impacts that may be attributable to the period from 1,000 to 10,000 years. The basis for the evaluation of the environmental impact of the uranium fuel cycle for the renewal of an operating license is 10 CFR 51.51—Table S-3, as supplemented with an evaluation of the contribution of Radon-222 and Technetium-99 to the environmental impact of the fuel cycle. The environmental data in Table S-3 and discussion of associated environmental impacts is expressed on the basis of a reference reactor year of operation. Discussion of fuel cycle impacts has been further supplemented in the final GEIS with available information on the status of regulatory requirements and studies on the possible performance of the candidate high-level waste repository at Yucca Mountain.

C. Severe Accident Mitigation Design Alternatives

Comment. Three industry commenters disagreed with the designation of severe accidents as Category 2 in the final rule and the requirement that severe accident mitigation design alternatives (SAMDAs) must be addressed by the applicant and staff if SAMDAs had not previously been addressed in a staff environmental document for the plant. They noted that efforts to analyze severe accident vulnerabilities and the opportunities to mitigate the vulnerabilities will be completed for all plants in the near future. These analyses will provide the bases for a generic finding on SAMDAs for all plants, including the designation of Category 1 for severe accidents. One commenter proposed that a generic Category 1 finding could be made that consideration of SAMDAs is not required for any plant that has a completed Individual Plant Examination (IPE) and Individual Plant Examination of External Events (IPEEE).

Response. It is stated at 61 FR 28481 that upon completion of its IPE/IPEEE program, the Commission may review the issue of severe accident mitigation for license renewal and consider, by separate rulemaking, reclassifying

severe accidents as a Category 1 issue. Completion of an IPE and IPEEE in itself is not sufficient to fulfill the Commission's responsibility under the National Environmental Policy Act (NEPA). SAMDA alternatives must be addressed within an Environmental Impact Statement (EIS), or supplement to an EIS, or an Environmental Assessment. The Commission believes that this can be most efficiently accomplished generically through a supplement to the GEIS and rule amendment based on Commission review of all IPEs and IPEEEs. Prior to successful completion of such a rulemaking an applicant will have to submit a SAMDA alternatives analysis, based on its IPE and IPEEE (if available), in its environmental report. Then the Commission will review that analysis in a supplemental EIS for the plant.

D. Electromagnetic Fields (Chronic Effects)

Comment. Four industry commenters disagreed with the treatment of chronic health effects of transmission line electromagnetic fields. The rule contains the finding that the magnitude of effects is uncertain. No finding is made in the rule as to whether this issue is a Category 1 or Category 2. The commenters note that no submittal is required of an applicant for this issue until such time as the Commission finds that a consensus has been reached by the appropriate Federal health agencies that there are adverse health effects. The commenters believe that the number of scientific studies performed over a long period of time which could find no harmful effects is adequate disclosure under the NEPA to designate this issue Category 1. It is suggested that an alternative to a Category 1 designation is rewording Footnote 5 to Table B-1 in the rule to state in a more positive manner that there is no scientific evidence of chronic biological effects on humans and that this issue will not be admitted as a contention in any hearing on a renewal application. One commenter believes that this issue is not related to refurbishment activities and thus should not be addressed in the context of license renewal.

Response. The Commission is not inclined at this time to change the rule relative to the treatment of the chronic human health effects of transmission line electromagnetic fields. The Commission recognizes that biological and physical studies of electromagnetic fields have not found consistent evidence linking harmful effects with field exposures and that much of the scientific evidence and many experts in the field arguably would support a

Category 1 determination for this issue. However, the Commission also recognizes that research is continuing in this area, and that a scientific consensus on the issue has not yet emerged. Consequently, the Commission believes that a more conservative position on the matter is appropriate at this time. With respect to concern that nonproductive litigation of this issue will take place in license renewal hearings, it should be noted that because of the intensive scrutiny given to this issue within the scientific community, any contention will have to meet scientific standards for admission.

E. Environmental Justice

Comment. Comments about the treatment of environmental justice in the rule were offered by EPA and two licensees. EPA stated that as the Commission further defines its environmental justice requirements it should consider the draft guidance issued by the Council on Environmental Quality (CEQ) on May 24, 1996, and the draft guidance issued by EPA on July 12, 1996. The licensees believe that the rule should include provisions for the treatment of environmental justice that take into consideration that most environmental impacts of relicensing nuclear plants have been found to be small and whether there is any benefit in conducting an environmental justice review for an already sited facility.

Response. The Commission is aware of the CEQ and EPA draft guidance on the treatment of environmental justice in NEPA reviews. This guidance is being considered as the Commission proceeds with developing its own requirements for the treatment of environmental justice in NEPA reviews. As these requirements are developed, the Commission will consider whether it is appropriate to take a generic rather than a site-specific approach to this issue for license renewal reviews.

F. Supplemental Site-Specific Environmental Impact Statement Versus Environmental Assessment

Comment. A licensee disagrees with the Commission's decision that a supplemental EIS will be prepared for license renewal reviews rather than a supplemental environmental assessment (EA) as proposed in the proposed rule. The licensee believes that environmental reviews will show that there will be no significant environmental impact for a number of license renewal applicants, and therefore preparation of an environmental assessment should be allowed under the final rule.

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Response. Several considerations led to the Commission's decision to require a supplemental EIS in license renewal reviews. The proposed rule and supporting GEIS would have included a preliminary conclusion of a favorable cost-benefit balance. The function of an EA would have been to consider the impacts associated with a limited set of environmental issues and whether these impacts would overturn the favorable preliminary cost-benefit finding in the GEIS and codified in the rule. Because there was a possibility that the impacts for the limited set of environmental issues would be found to be nonexistent or insignificant (no significant impacts), use of an EA was provided for in the proposed rule. In addition, a finding of no significant impact and the supporting EA may be issued in draft for comment at the discretion of the appropriate NRC staff director. The proposed rule was challenged with respect to preliminary cost-benefit findings and procedural hurdles to public input to the license renewal review. To resolve these concerns, the Commission modified the rule to eliminate the preliminary license renewal finding and to make that finding only after consideration of all impacts within the plant-specific review. The Commission believes that the sum of all the individual impacts that are to be considered in the decision whether to renew a nuclear power plant operating license for an additional 20 years, especially given the controversy over various aspects of nuclear power, exceeds the Commission's threshold for a finding of no significant impact. This and the desire to ensure public access to the license renewal review process led to the requirement of a supplemental EIS for license renewal.

G. Purpose and Need for the Proposed Action

Comment. EPA questions the definition of the "proposed action" within the context of the discussion of purpose and need at 61 FR 28472.

Response. The definition of "purpose and need" is to be applied to the "proposed action" of renewal of a nuclear power plant operating license. It does not refer to and should not be confused with the purpose of the GEIS, which is given in the GEIS, Section 1.1 Purpose of the GEIS.

H. Alternatives

Comment. A individual believes that the rule appears to contradict the *Limerick Ecology Action* decision, 869 F.2d 719 (3rd Cir. 1989). The commenter states that this decision " * * * requires the environmental

review to look at non-nuclear design alternatives in context of severe accidents including non-nuclear alternatives." The commenter proceeds to express concern that the analysis of alternatives consider "efficiency and conservation" and that sites considered for alternatives not be limited geographically because of the ability to wheel power over long distances. Finally, the individual objects to eliminating utility economics from the environmental review because "The real world reason to extend an operating license is that of utility economics."

Response. The *Limerick* decision was concerned with the consideration of design mitigation alternatives specifically for the Limerick plant, not with "non-nuclear design alternatives." With respect to the commenters concerns about the treatment of alternatives to license renewal, the Commission believes that the final GEIS and rule adequately accommodate these concerns. The consideration of alternative energy sources in individual license renewal reviews will consider those alternatives that are reasonable for the region, including power purchases from outside the applicant's service area. Also, in assessing the environmental impacts of new generating capacity it will not necessarily be assumed that the capacity would be constructed on the site under review. Finally, consideration of the economic merits of renewing a plant operating license is eliminated only from the Commission's decision whether to renew. The decision about the economic merits of continued operation of a nuclear power plant will be made by the owners and the State regulators.

III. Procedural Background

Because this rule makes only minor clarifying and conforming changes and adds language inadvertently omitted from Table B-1 of the rulemaking published June 5, 1996, and because public comments were solicited on that rulemaking the NRC is approving this rule without seeking public comments on proposed amendments. As such, pursuant to 5 U.S.C. 553(b)(B), the Commission for good cause finds that a notice and comment procedure is unnecessary for this rulemaking.

IV. Finding of No Significant Environmental Impact: Availability

The NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been

prepared for this regulation. This action is procedural in nature and pertains only to the type of environmental information to be reviewed.

V. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150-0021.

The public reporting burden for this collection of information is estimated to average 4,200 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at BJS1@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0021), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

VI. Regulatory Analysis

The regulatory analysis prepared for the final rule published June 5, 1996 (61 FR 28467) is unchanged for this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The two alternatives considered were:

(A) Retaining the existing 10 CFR Part 51 review process for license renewal, which requires that all reviews be on a plant-specific basis; and

(B) Amending 10 CFR Part 51 to allow a portion of the environmental review to be conducted on a generic basis.

The conclusions of the regulatory analysis show substantial cost savings of alternative (B) over alternative (A). The analysis, NUREG-1440, is available for inspection in the NRC Public Document Room, 2120 L Street NW., (Lower Level), Washington, DC. Copies of the analysis are available as described in Section V.

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VII. Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant impact on a substantial number of small entities. The final rule states the application procedures and environmental information to be submitted by nuclear power plant licensees to facilitate NRC's obligations under NEPA. Nuclear power plant licensees do not fall within the definition of small businesses as defined in Section 3 of the Small Business Act, 15 U.S.C. 632, or the Commission's Size Standards, April 11, 1995 (60 FR 18344).

VIII. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a "major rule" and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

IX. Backfit Analysis

The NRC has determined that these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1); therefore, a backfit analysis need not be prepared.

List of Subjects in 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the National Environmental Policy Act of 1969, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 51.

61 FR 68543
Published 12/30/96
Effective 1/17/97

10 CFR Part 51

RIN 3150-AD63

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; Correction.

SUMMARY: This document corrects a final rule appearing in the Federal Register on December 18, 1996 (61 FR 66537), that amends regulations on the environmental review of applications to renew the operating licenses of nuclear power plants. This action is necessary to remove an unnecessary amendatory instruction and to correct an erroneous amendatory instruction.

EFFECTIVE DATE: January 17, 1997.

FOR FURTHER INFORMATION CONTACT: Michael T. Lesar, telephone (301) 415-7163.

SUPPLEMENTARY INFORMATION:

§ 51.103 [Corrected]

On page 66545, amendatory instruction 5 is removed.

On page 66546, amendatory instruction 8 is revised to read as follows:

"8. In § 51.103, paragraphs (a)(3) and (a)(5) are revised to read as follows:"

Dated at Rockville, Maryland, this 23rd day of December, 1996.

For the Nuclear Regulatory Commission.

Michael T. Lesar,
Federal Register Liaison Officer.

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART 52

EARLY SITE PERMITS; STANDARD DESIGN CERTIFICATIONS; AND COMBINED LICENSES FOR NUCLEAR POWER PLANTS

STATEMENTS OF CONSIDERATION

54 FR 15372

Published 4/18/89

Effective 5/18/89

10 CFR Parts 2, 50, 51, 52, and 170

RIN 3150-AC61

Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is now adding a new part to its regulations which provides for issuance of early site permits, standard design certifications, and combined construction permits and operating licenses with conditions for nuclear power reactors. The new part sets out the review procedures and licensing requirements for applications for these new licenses and certifications. The final action is intended to achieve the early resolution of licensing issues and enhance the safety and reliability of nuclear power plants.

EFFECTIVE DATE: May 18, 1989.

ADDRESS: Documents relative to this final rule may be examined and copied for a fee at the NRC Public Document Room, 2120 L Street NW, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Steven Crockett, Attorney, Office of the General Counsel, telephone (301) 492-1600, on procedural matters, or Jerry Wilson, Office of Nuclear Regulatory Research, telephone (301) 492-3729, on technical matters, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

SUPPLEMENTARY INFORMATION:

I. Background

The Commission has long sought nuclear power plant standardization and the enhanced safety and licensing reform which standardization could make possible. For more than a decade, the Commission has been adding provisions to 10 CFR Part 50 and Part 2 that allow for limited degrees of standardization, and for as many years, the Commission has been proposing legislation to Congress on the subject. The Commission was frequently asked

by Members of Congress to what extent legislation on the subject was necessary, and in doing the analysis necessary to reply to these questions, the Commission came to believe that much of what it sought could be accomplished within its current statutory authority. Thus the Commission embarked on standardization rulemaking.

The rulemaking process has been lengthy and highly public. A year and a half ago, the Commission announced its intent to pursue standardization rulemaking in its Policy Statement on Nuclear Power Plant Standardization (52 FR 34884; September 15, 1987). The Policy Statement set forth the principles that would guide the rulemaking and provided for a forty-five-day comment period on the Policy Statement. On October 20, 1987, about mid-way through the comment period the NRC staff held a public workshop on the Policy Statement. During the Workshop, the staff presented a detailed outline of the proposed rule and answered preliminary questions about it. A transcript of the workshop may be found in the Commission's public document room, Gelman Building, 2120 L Street, NW, Washington, DC. After a lengthy internal consideration of the comments received on the Policy Statement and the outline of the rule presented at the Workshop, and after public briefings of the Commission and the Advisory Committee on Reactor Safeguards (ACRS), the Commission issued a proposed rule (53 FR 32080; August 23, 1988) and provided for a sixty-day comment period. The comment period was extended to 75 days on October 24, 1988 (53 FR 41609). Mid-way through that period the NRC staff again held a public workshop, this time on the text of the proposed rule.¹

During the second, 75-day comment period, the Commission received over 70

sets of comments, ranging from one-page letters to multi-paged documents, one of which included an annotated rewrite of the whole rule. The commenters included the Department of Energy (DOE), agencies and offices in the states of Connecticut, Indiana, New York, and North Carolina, the Nuclear Utility Management and Resources Council (NUMARC), the American Nuclear Energy Council, Westinghouse, General Electric, Combustion Engineering, Stone & Webster, the U.S. Chamber of Commerce, the Union of Concerned Scientists (UCS), the Nuclear Information and Resource Service (NIRS), the Ohio Citizens for Responsible Energy (OCRE), the Maryland Nuclear Safety Coalition, and several utilities, corporations, public interest groups, and individuals. All the comments may be viewed in the agency's public document room.

The Commission has carefully considered all the comments and wishes to express its sincere appreciation of the often considerable efforts of the commenters. While the broad outlines, and even many of the details, of the proposed rule remained unchanged in the final rule, few sections of the proposed rule have escaped revision in light of the comments, and some have been thoroughly revised. In the remainder of this section of this final rule preamble, the Commission makes two general responses to comments and then summarizes both the comments and its responses to them. In Section II of this final rule preamble, the Commission responds to comments on the chief issues raised by the comments. While Section II often touches on the broad policies which lie behind the rule, readers wishing to know more about those broad policies may consult the statement of considerations which was published with the proposed rule. In Section III, which proceeds section-by-section through the final rule, the Commission notes minor changes and offers some minor clarifications of the meaning of some provisions. For a complete record of the differences

¹ Given this lengthy and public process, the Commission is unpersuaded by commenters on the proposed rule who claim that the public was not given enough time to consider the rule. For example, the Nuclear Information Resource Service (NIRS) says that given the importance of the rule, one "would think that the NRC would encourage the widest possible public participation on this rule, perhaps even by making special efforts to solicit comment." That is, of course, precisely what the Commission did.

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between the proposed rule and the final rule, readers may consult the comparative text of the final rule, which is available in the agency's public document room.

Two General Responses to Comments

Before summing up the comments and the Commission's responses to them, the Commission wishes to make clear what it has not tried to do in this rulemaking. First, although this is an important rulemaking, it does not resolve all the safety, environmental, and political issues facing nuclear power. The Commission received urgings to undertake deep reforms before issuing this final rule. The Commission was, for instance, urged to streamline the hearing procedures in 10 CFR Part 2, Subpart G, restructure the utilities' liabilities under the Price-Anderson Act, decide once and for all what safety criteria shall be applied to all future plants, solve the problem of nuclear waste, turn all health and safety regulation—not just the NRC's—over to the states, reconsider whether economic considerations should ever enter into safety decisions, conduct local running referenda on whether a given nuclear power plant should be built, and have Congress directly review designs. In sum, the Commission was urged to do everything before it did anything.

However, the Commission has stuck to the simple aim in this rulemaking of providing procedures for the standardization of nuclear power plants and more generally for the early resolution of safety and environmental issues in licensing proceedings. The Commission has declined to tie the fate of this rulemaking to the progress of the agency's many other ongoing efforts, such as revision of the agency's hearing procedures, implementation of the Policy Statement on Safety Goals (51 FR 30028; August 21, 1986), development of techniques of analysis of risk and cost, and preparation for the licensing of a high-level waste repository. The final rule necessarily touches on substance whenever it sets forth requirements for the technical content of applications for early site permits, design certifications, or combined licenses, or discusses the applicability of existing standards to new designs and new situations. But even here, the Commission has avoided establishing new safety or environmental standards, although the Commission may choose to adopt additional safety standards applicable to new designs prior to the advent of design certifications.

Second, many saw this rule as the occasion for arguments over the future viability of nuclear power in the United

States. On the one hand, the Commission is vigorously accused of promoting the nuclear industry and shutting local governments and individual citizens out of the licensing process. On the other hand, the Commission is told that the licensing process is "the reason" for "the loss of the nuclear option", and that reform of that process is the "sine qua non" of the viability of that option.

Certainly, the Commission hopes that this rule will have a beneficial effect on the licensing process. In other words, the Commission hopes that effort has not been wasted on a rule which will never be used. But the Commission is not out to secure, single-handedly, the viability of the industry or to shut the general public out. The future of nuclear power depends not only on the licensing process but also on economic trends and events, the safety and reliability of the plants, political fortunes, and much else. The Commission's intent with this rulemaking is only to have a sensible and stable procedural framework in place for the consideration of future designs, and to make it possible to resolve safety and environmental issues before plants are built, rather than after.

Summary of the Comments and the Commission's Responses

The comments on the proposed rule are characterized both by their broad agreement that standardization and early resolution of licensing issues are desirable, and by their often deep differences on what kinds of designs should be certified, how they should be certified, and what consequences certification should have for the licensing process.

As to what kinds of designs should be certified, except for the very few who opposed any licensing of any nuclear power plant, no commenter opposes the certification of designs which differ significantly from the designs which have been built thus far; but some, UCS, for instance, say that only "advanced" designs should be certified, and many, including UCS, DOE, and Westinghouse, say that only designs for whole plants should be certified.

While not withholding certification from incomplete designs or designs which are not advanced, the final rule has moved a long way from the position the Commission took in the legislative proposal it made shortly before this rulemaking began. There, certification was held out only for evolutionary light water designs, but was permitted for the design of any "major portion" of a plant. The final rule provides for certification of advanced designs and permits certification of designs of less than full

scope only in highly restricted circumstances.

As to how designs should be certified, most commenters think the Commission has authority to certify either by rule or by license. However, some commenters see advantages in certification by license. OCRE, for instance, says that certification by license is more appropriate, and some industry commenters think that more protections are available to the holder of a design license than are available to the "holder" of a design rule. Some commenters prefer certification by license because they believe that a hearing on a license has to be a formal adjudication.

The final rule reflects the Commission's long-standing preference for certification by rulemaking (see the old 10 CFR Part 50, Appendix O, paragraph 7), and for certification hearing procedures which, while they permit formal procedures when needed, do not assume that formal procedures are the best means for resolving every safety issues.

Finally, the deepest differences among the commenters concern the consequences of standardization and other devices for early resolution of licensing issues for the licensing process. One commenter believes that, once a plant is built under a combined license, there need be no hearing at all before operation begins. Several of these commenters characterize the proposed rule's provision for an opportunity for a hearing just before operation as the old two-step licensing process under a different name. Others believe not only that there should be such a hearing but also that resolution of issues in earlier proceedings does not entail any restriction on the issues which may be raised in the hearing after construction. Many of these commenters attribute to the Commission an intent to do away with public participation in the licensing process.

The Commission has given more consideration to this issue than to any other procedural question raised by the proposed rule. As a result, the proposed rule's provisions on hearings just before operation have been revised in the final rule (the revised provisions are discussed in more detail below). However, the final rule still provides for an opportunity for a hearing on limited issues before operation under a combined license. But the mere fact of this opportunity does not mean that the rule is hiding the old two-step process under a different name. By far the greater part of the issues which in the past have been considered in operating

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license hearings would, under the new rule, be considered at the combined license stage or in a certification proceeding, including the bulk of emergency planning issues. Similarly, the mere fact that any hearing prior to operation would be limited does not mean that the Commission is attempting to remove the public from the licensing process. The rule does not prevent the public from participating in the resolution of any operating license issue. It simply moves the bulk of the issues up front in the licensing process to the design certification, early site permit, and combined license parts of the process.

II. The Principal Issues

1. Requirements for Applications for Design Certification

Because design certification is the key procedural device in Part 52 for bringing about enhanced safety and early resolution of licensing issues, the Commission begins its discussion of the principal issues with responses to comments on the proposed rule's requirements for applications for certification.

a. "Advanced" Designs

The proposed rule provided for certification both of evolutionary light-water designs, that is, improved versions of the light-water designs now in operation, and of "advanced" designs, that is, designs which differ significantly from the evolutionary light-water designs, or which incorporate, to a greater extent than evolutionary light-water designs do, simplified, inherent, passive, or other innovative means to accomplish their safety functions (the distinction between evolutionary light-water designs and advanced designs is discussed at greater length below). The proposed rule required that some advanced designs could not be certified until full-scale prototypes of them were built and tested. While agreeing with the requirement for prototype testing of some advanced designs, several commenters, UCS prominent among them, say that certification should be held out only to advanced designs. UCS argues that without such a limitation on the designs which could be offered up for certification, the proposed rule would discriminate against the development of advanced designs of greater safety, because, given the choice between seeking certification of a familiar design and seeking certification of a design which the Commission might require to be tested in a full-scale prototype, an applicant would choose to avoid having to build a prototype.

As is noted above, the rule, unlike the legislative proposals which preceded it, provides for certification of advanced designs. However, it also provides for certification of evolutionary light-water designs. The Commission's legislative proposals on standardization have always focused on these designs, on the grounds that the light-water designs now in operation provide a high degree of protection to public health and safety. Moreover, the Commission does not believe that the requirement in some cases for a prototype is such a burden. Whatever burden having to test a prototype may be, the burden may be lessened by agreements of cost-sharing among utilities and other organizations, and by licensing the prototype for commercial operation. It is well to remember also that, under the rule, prototype testing is required only for certification or an unconditional final design approval, if at all. A final design approval under 10 CFR Part 52, Appendix O (formerly in Part 50) can be granted subject to conditions requiring prototype testing. See 10 CFR Part 52, Appendix O, paragraph 5. Moreover, a licensed prototype may be replicated.

b. Requirement to Address Unresolved Safety Issues and Safety Goals

Several commenters object to the proposed rule's requirement that applicants for certification propose technical resolutions of Unresolved Safety Issues and high- and medium-priority Generic Safety Issues. This requirement, and similar ones relating to probabilistic risk assessments and the Commission's Three Mile Island requirements for new plants, 10 CFR 50.34(f), were announced in the Commission's Severe Accident Policy Statement (50 FR 32138; August 8, 1985) and in the Commission's Policy Statement on Standardization (52 FR 34884; September 15, 1987). Some commenters call it "inappropriate" to impose this burden on applicants. Others say that no resolution of one of these issues should be imposed on a design unless the resolution had passed a cost-benefit test.

The Commission believes that it is not inappropriate to require that an applicant for certification show either that a particular issue is not relevant to the design proffered in the application, or that the applicant has in hand a design-specific resolution of the issue (the applicant is of course not required to propose a generic resolution of the issue). As to cost-benefit tests, the Commission will of course apply them to the resolution of safety issues where the resolutions are being imposed on existing plants and adequate protection

is already secured. See 10 CFR 50.109 and *UCS v. NRC*, 824 F.2d 108 (D.C. Cir. 1987). However, initial certification does not involve backfitting. Designers will, of course, strive for a cost-effective design, but the Commission declines to incorporate a cost-benefit test in the standards for certification.

c. Requirements on Scope of Design and on Prototypes

In the statement of considerations accompanying the proposed rule, the Commission noted that the proposed rule permitted certification of incomplete designs only in limited cases, while the legislation the Commission had proposed to the 100th Congress had been less stringent about scope of design. The Commission invited comment on whether the final rule should return to the policy reflected in the proposed legislation. DOE, Westinghouse, and UCS, among others, argue that only designs of complete power plants—excluding site-specific elements of course—should be certified. NUMARC, however, advocates a return to the policy of the legislation proposed to the 100th Congress. One engineering firm argues that requiring complete designs would limit market forces that could contribute to standardization.

The final rule is even more stringent about completeness of design than the proposed rule was. The final rule's provisions on scope, see § 52.47, reflect a policy that certain designs, especially designs which are evolutions of light-water designs now in operation, should not be certified unless they include all of a plant which can affect safe operation of the plant except its site-specific elements. See § 52.47(b). Examples of designs which are evolutions of currently operating light-water designs are General Electric's ABWR, Westinghouse's SP/90, and Combustion Engineering's System 80+. Full-scope may also be required of certain advanced designs, namely, the "passive" light-water designs such as General Electric's SBWR and Westinghouse's AP600. Considerations of safety, not market forces, constitute the basis for the final rule's requirement that these designs be full-scope designs. Long experience with operating light-water designs more than adequately demonstrates the adverse safety impact which portions of the balance of plant can have on the nuclear island. Given this experience, certification of these designs must be based on a consideration of the whole plant, or else the certifications of those designs will lack that degree of finality which should be the mark of certification.

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However, the Commission has not adopted UCS's position that no design of incomplete scope could ever be certified. There is no reason to conclude that there could never be a design which protects the nuclear island against adverse effects caused by events in the balance of plant. The final rule therefore provides the opportunity for certification of designs of less than complete scope, if they belong to the class of advanced designs. See § 52.47(b). Examples of designs in this class include the passive light-water designs mentioned above and non-light-water designs such as General Electric's PRISM, Rockwell's SAFR, and General Atomic's MHTGR. But here too the rule sets a high standard: Certification of an advanced design of incomplete scope will be given only after a showing, using a full-scale prototype, that the balance of plant cannot significantly affect the safe operation of the plant.

Standardization along these lines may indeed limit some market forces, particularly those which encourage a highly differentiated range of products. However, the final rule's requirements on scope in no way limit innovative arrangements among vendors and architect-engineers for bringing new designs before the Commission.

The final rule is clearer than the proposed rule was in identifying those designs which cannot be certified without a program of testing. For purposes of determining which designs must undergo a testing program to be certified, the rule distinguishes between all advanced designs—be they passive light-water or non-light water—and evolutionary light-water designs. Some testing may be required of all advanced designs. Passive light-water designs are to some extent also evolutions of the light-water designs now licensed, but they have design features which are not present on plants licensed and operating in the United States. Therefore the rule requires that the maturity of the passive light-water designs be demonstrated through a combination of experience, appropriate tests, or analyses, but most likely not through prototype testing. See § 52.47(b)(2). While analyses may be relied upon by the staff to demonstrate the acceptability of a particular safety feature which evolved from previous experience or to justify the acceptability of a scale model test, it is very unlikely that an advanced design would be certified solely on the basis of analyses. Prototype testing is likely to be required for certification of advanced non-light-water designs because these revolutionary designs use innovative means to accomplish their safety

functions, such as passive decay heat removal and reactivity control, which have not been licensed and operated in the United States. See *id.*

d. Certification by Rulemaking

The proposed rule provided for design certification by rulemaking. Here the proposed rule was in accord with the old 10 CFR Part 50, Appendix O, paragraph 7 (this paragraph is now being replaced by Subpart B of Part 52). However, in the notice of proposed rulemaking, the Commission invited comments on whether certification should be by license rather than rule. Although the Commission expressed some doubts on the matter, commenters generally agree that the Commission has the authority to license designs. Some industry commenters and some public interest groups alike go further and argue that certification by license is preferable. Industry commenters arguing this position believe that the rights and obligations which attach to a license are clearer than those which attach to a rule. For instance, a license is possessed by some entity and, under Commission law, cannot be transferred without that entity's consent. Some public interest groups prefer certification by license because they believe that the hearing on a license would have to be a formal adjudication.

The Commission continues to believe that certification by rule is preferable to certification by license. As DOE says, a design certification will, like a rule, have generic application. Moreover, certification by rulemaking leaves the Commission free to adapt hearing procedures to the requirements of the subject matter, rather than rely exclusively on formal adjudicatory devices even when they are not useful (hearing procedures are more fully discussed below). Finally, certification by rulemaking permits the Commission to consider reactor designs submitted by foreign corporations. However, the Commission will give priority to designs for which there is a demonstrated interest in the United States. The Commission will review other designs as resources permit.

For the reasons just given, the final rule retains provisions for certification by rulemaking. Westinghouse suggests also adding provisions for certification by license, leaving it to the applicant to choose between certification by license and certification by rulemaking. The Commission, however, prefers rulemaking and sees no advantage to providing such an option.

NUMARC, while supporting certification by rule, suggests adding provisions analogous to existing

provisions in 10 CFR Part 50 for transfer or revocation of a license. See 10 CFR 50.80 and 50.100. However, a rule certifying a design does not, strictly speaking, belong to the designer. Therefore, such a rule cannot be transferred or revoked by adjudicatory enforcement. Applying § 50.80, in particular, to a rule certifying a design would be akin to giving the vendor of the design a patent, but the Commission has no authority to issue patents.

Nonetheless, the vendor whose design is certified by rule is not without protection. Section 52.63(a), the Administrative Procedure Act, and, ultimately, judicial review protect the vendor against arbitrary amendment or rescission of the certification rule, and the law of patents and trade secrets protects the vendor against unlawful use of the design. In order to give the vendor more opportunity to treat elements of the design as trade secrets, the final rule provides that proprietary information contained in an application for design certification shall be given the same treatment that such information would be given in a proceeding on an application for a construction permit or an operating license under 10 CFR Part 50. See § 52.51. Moreover, an applicant referencing a design certification and seeking to use a designer other than the designer which achieved the certification would have to comply with §§ 52.63(c) and 52.73, and the other designer would have to pay a portion of the cost of review of the application for certification. See 10 CFR 170.12 (d) and (e), as amended in this document.

e. Applicability of Existing Standards

With one exception, the proposed rule did not say what safety standards would be applied to a design proffered for certification, or even precisely what existing information requirements applicants would have to meet.² In its lengthy and highly detailed comments, NUMARC proposes adding to the rule a large number of highly specific cross-references to Part 50, and a statement that no other portions of Part 50 apply.

The final rule provides that the standards set out in 10 CFR Part 20, Part 50 and its appendices, and Parts 73 and 100 will apply to the new designs where those standards are technically relevant to the design proposed for the facility. See new § 52.48. Application of Parts 20, 50, 73, and 100 to the certification of new

² The proposed rule did state that an application for certification would have to demonstrate that the design complied with the technically relevant portions of the Commission's Three Mile Island requirements set forth in 10 CFR 50.34(f). See § 52.47(a), 53 FR 32073 (proposed rule).

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designs, as reflected in § 52.48, should go a long way toward establishing the regulatory standard that new designs must meet, and thereby provide the regulatory stability that is an essential prerequisite to realizing the benefits of standardization. The Commission recognizes that new designs may incorporate new features not addressed by the current standards in Parts 20, 50, 73 or 100 and that, accordingly, new standards may be required to address any such new design features. Therefore, the NRC staff shall, as soon as practicable, advise the Commission of the need for criteria for judging the safety of designs offered for certification that are different from or supplementary to current standards in 10 CFR Parts 20, 50, 73, and 100. The Commission shall consider the NRC staff's views and determine whether additional rulemaking is needed or appropriate to resolve generic questions that are applicable to multiple designs. The objective of such rulemaking would be to incorporate any new standards in Part 50 or Part 100, as appropriate, rather than to develop such standards in the context of the Commission's review and approval of individual applications for design certifications. On the other hand, new design features that are unique to a particular design would be addressed in the context of a rulemaking proceeding for that particular design.

f. Hearings on Applications for Design Certifications

Like the proposed rule, the final rule provides for notice and comment rulemaking on an application for a design certification, together with an opportunity for an informal hearing on an application for a design certification. The rule also permits the use of more formal procedures where they are the only procedures available for resolving a given issue properly. See § 52.51. UCS and others argue that any hearing on certification should be a formal adjudication. In particular, UCS argues that the certification proceeding will be dealing with adjudicative, as opposed to legislative, facts and therefore should be fully adjudicatory. UCS characterizes adjudicative facts as "uniquely related to activities of the parties that are at issue" and legislative facts as "facts about industry practices, economic impact, scientific data, and other information about which the parties have no special information."

UCS' argument proves too much. If the facts to be considered in a certification proceeding are wholly adjudicative, then, because those facts are like the facts considered in any rulemaking on safety issues, every such rulemaking

must be a formal adjudication. However, this conclusion is clearly not the law; therefore, the facts in a certification proceeding are not wholly adjudicatory. Moreover, if such facts must be categorized at all, they are more "legislative" than "adjudicative", as UCS defines those terms, for while they are "related to activities of the parties", they are not uniquely so, and they are facts about "industry practices, scientific data", engineering principles, and the like.

Several commenters also argue that the certification proceeding should be a formal adjudication because cross-examination is an unsurpassed means for discovering the truth. Again, the argument proves too much, namely, that every rulemaking, indeed every species of lawmaking, should be formal adjudication. Part 52 does not assume the superiority, or even the usefulness, of formal procedures for resolving every issue; but it does provide for their use where they are the only means available for resolving an issue properly.

g. Fees for Review of Applications

The final rule adheres to the fee policy embodied in the proposed rule. An applicant for design certification does not have to pay an application fee, but the applicant will have to pay the full cost of the NRC review of the application, although not until the certification is referenced in an application for a construction permit or combined license, or, failing that, not until the certification expires. The details of the scheme of deferral of the fees appear in conforming amendments to the recently amended 10 CFR Part 170 (53 FR 52832; December 29, 1988).

UCS asserts that the provision for deferral of fees for NRC review is "unconscionable". To the contrary, the Commission believes that there is nothing "unconscionable" about deferral of fees for a program whose aim is to enhance safety.

Some industry commenters assert that the requirement for payment of the full cost of NRC review presents an "insurmountable disincentive" to the development of certified designs. Some industry commenters propose putting a ceiling on fees for certification review, in order to help vendors better estimate the costs of developing and certifying a design. The Commission fully recognizes that it will be difficult for a vendor to estimate the costs of taking a design through to certification. However, a ceiling on fees only displaces the burden of that uncertainty from the vendor to the public. In recent years, the NRC has been obliged by statute to charge fees which return to the Federal Treasury a

portion of the costs incurred in regulation. Deferral of fees is more in line with the policies behind those statutes than is putting the burden of uncertainty on the public.

h. Finality

Standardization has the double aim of enhancing safety and making it possible to resolve design issues before construction. Of these two aims, enhanced safety is the chief, because pre-construction resolution of design issues could be achieved simply through combined construction permits and operating licenses with conditions. Achievement of the enhanced safety which standardization makes possible will be frustrated if too frequent changes to either a certified design or the plants referencing it are permitted.

The proposed rule put forward principally three means of preventing a continual regression from standardization. First, the proposed rule required that any amendment proffered by the "holder" of a certification be considered in a notice and comment rulemaking and granted if the amendment complied with the Atomic Energy Act and the Commission's regulations. Second, the proposed rule prohibited the licensee of a plant built according to a certified design from making any change to any part of the plant which was described in the certification unless the licensee had been granted an exemption under 10 CFR 50.12 from the rule certifying the design. Third, the proposed rule stated that the Commission would not backfit a certified design or the plants built according to it unless a backfit were necessary to assure compliance with the applicable regulations or to assure adequate protection of public health and safety. See § 52.63 of the proposed rule, 53 FR 32074, col. 3, to 32075, col. 2. The Commission invited comment on whether the amendment and exemption standards were stringent enough, and on whether the backfitting standard gave certifications a reasonable degree of finality. See 53 FR 32067, col. 2.

The comments focus on the standard of amending the certification, one group of comments wanting to make it harder for the "holder" of a certification to get an amendment, and another group wanting to make it easier. Several commenters say that the proposed rule wrongly makes it easier for the designer to amend the certified design than it is for the Commission to backfit the design. To correct this perceived imbalance, UCS, among others, proposes that no amendment be granted unless it constitutes a safety enhancement, and

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that any amendment granted be backfitted on all plants built according to the design being amended. OCRE proposes that, at a minimum, no amendment should be granted which would entail a decrease in safety. On the other side, NUMARC proposes virtually the same standard as a maximum: Any amendment which has no safety impact should be granted. DOE in effect argues that the Commission does not have authority to ask for more than OCRE's minimum, because this type of amendment would be proposed for economic, plant efficiency, or other business reasons and the NRC has no expertise or authority in areas involving business judgments. The law firm of Bishop, Cook, Purcell, and Reynolds, representing several utilities, proposes a backfitting standard more stringent than the one in the proposed rule: The Commission should not impose backfits on a design for the sake of compliance with applicable regulations unless the lack of compliance has an adverse impact on safety. Going even further in the same vein, the U.S. Chamber of Commerce proposes that even where the lack of compliance has an adverse impact on safety, the backfit should have to pass muster under a cross-benefit analysis.

The final rule places a designer on the same footing as the Commission or any other interested member of the public. No matter who proposes it, a change will not be made to a design certification while it is in effect unless the change is necessary to bring the certification into compliance with Commission regulations applicable and in effect when the certification was issued, or to assure adequate protection of public health and safety. See § 52.63(a)(1). Thus, the final rule cannot be said to make it easier for a designer to amend a certification than for the Commission to backfit the design. But more important, the final rule thus provides greater assurance that standardization and the concomitant safety benefits will be preserved.

The Commission is not adopting Bishop, Cook's suggestion that compliance be required only when non-compliance would have an adverse impact on safety. Licensees seeking relief from a design certification, who believe that non-compliance would have no adverse impact on safety, should request an exemption under 10 CFR 50.12. Neither is the Commission adopting the suggestion of the U.S. Chamber of Commerce that cost-benefit analysis be used to determine whether to impose backfits on designs to bring them into compliance with applicable

regulations. The Atomic Energy Act allows the Commission to consider costs only in deciding whether to establish or whether to enforce through backfitting safety requirements that are not necessary to provide adequate protection. See *UCS v. NRC*, 824 F.2d 108, 120 (1987).

The final rule, like the proposed rule, permits applicants for combined licenses issued under the rule, and licensees of a plant built according to a certified design, to request an exemption under 10 CFR 50.12 from a rule certifying a design. Among the comments on the appropriateness of using § 50.12 in the standardization context were NIRS' comment that § 50.12 permitted exemptions at a "whim" and DOE's suggestion that no exemptions should be granted at all. Out of respect for the unforeseen, the Commission has decided to adhere to § 50.12, but the final rule does require that, before an exemption can be granted, the effect which the exemption might have on standardization and its safety benefits must be considered.

As a further guard against a loss of standardization, the final rule, again like the proposed rule, also prohibits a licensee of a plant built according to a certified design from making any change to any part of the plant which is described in the certification unless the licensee has been granted an exemption under 10 CFR 50.12 from the rule certifying the design. Because the certification is a rule, 10 CFR 50.12, not 50.59, is the standard for determining whether the licensee may make changes to the certified portion of the design of the plant without prior approval from the NRC. NUMARC says that, given the practicalities of construction and the limited resources of the NRC staff, licensees need the flexibility afforded by § 50.59. However, the Commission believes that the certifications themselves and § 50.12 will provide the necessary flexibility with respect to the certified portion of the plant (or at least as much flexibility as is consistent with achieving the safety benefits of standardization), while § 50.59 will continue to apply to the uncertified portion. How much flexibility § 50.12 will provide depends in large part on how much detail is present in a design certification, and just how much is present will be an issue which will have to be resolved in each certification rulemaking. The Commission does expect, however, that there will be less detail in a certification than in an application for certification, and that a rule certifying a design is likely to encompass roughly the same design

features that § 50.59 prohibits changing without prior NRC approval. Moreover, the level of design detail in certifications should afford licensees an opportunity to take advantage of improvements in equipment.

The comments on the proposed rule raise two other important finality issues, both connected with backfitting. The first bears on the criteria for renewal of a design certification. The proposed rule provided that the Commission would grant a request for renewal of a design certification if the design complied with regulations in effect at renewal and any more stringent safety requirements which would bring about a substantial increase in safety at a cost justified by the increase (strictly speaking, the backfit rule would not apply at renewal, but the proposal nonetheless incorporated the backfit rule's cost-benefit standards). See § 52.59(a), 53 FR 32074, col. 3. Bishop, Cook, among others, proposes that the standard for renewal be compliance with regulations in effect not at renewal but rather at the time the certification was originally issued, together with any other more stringent requirements which are justified under the backfit rule. The proposed rule's criteria were in fact equivalent to Bishop, Cook's in their impact on a given design certification, but they differed in their impact on the timing of some backfit analyses, the proposed rule providing that some would be done in rulemakings while the given certification was in effect. However, the final rule adopts Bishop, Cook's proposal because it more clearly says that imposition of more stringent requirements on a design during a renewal proceeding will be governed by backfit standards.

The second of the other important finality issues raised by the comments concerns the finality of 10 CFR Part 52, Appendix O (formerly in Part 50) final design approvals (FDAs) already in effect on the effective date of this rule. Section 52.47(a)(2) of the proposed rule stated that holders of FDAs in effect on the effective date of the rule might have to submit more information to the staff in connection with the review for certification. NUMARC proposes adding a "grandfather" clause which would prohibit the Commission from imposing, during the certification proceeding, any change on that part of the design which is covered by an already effective FDA unless the change meets the criteria of the backfit rule.

Adoption of NUMARC's proposal would not only entail a significant change in the force of an FDA, it would also extend the range of application of

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the backfit rule. Under existing NRC regulations, an FDA binds the staff in a licensing proceeding but not in a certification proceeding; and even in a licensing proceeding, the staff may, on the grounds of significant new information or other good cause, reconsider an earlier determination. See 10 CFR Part 52, Appendix O, paragraph 5. Moreover, the FDA does not bind the Commission or the Commission's adjudicatory panels. *Id.* at paragraph 6. The backfit rule applies to any proposal which would require the holder of an FDA to meet a new standard in order to remain in possession of the FDA, see 10 CFR 50.109(a)(1), but the backfit rule does not change the force an FDA has in a licensing proceeding or certification proceeding.

NUMARC's proposal, however, would bind both the staff and the Commission in a certification proceeding and would add a cost-benefit test to the tests which must be met before a determination made in an FDA could be reconsidered. NUMARC's proposal thus would effectively amend both the backfit rule and the cited paragraphs of Appendix O: It would, in effect, turn any existing FDA into a partial certification. Here the Commission would rather adhere to the finality provisions in the existing regulations, including Appendix O and the backfit rule. The Commission believes that, in this situation, these provisions adequately balance the need for finality with the need for flexibility to deal with unforeseen safety advances or risks.

2. Early Site Permits

What design certification is to the early resolution of design issues, the early site permit is to the early resolution of site-related issues. Both the certification and the permit make it possible to resolve important licensing issues before a construction permit proceeding. They in effect make possible the banking of designs and sites, thereby making the licensing of a given plant more efficient. However, some commenters question whether the Commission should issue early site permits. The Attorney General of New York, for instance, sees no need for early site permits and questions whether there could be grounds adequate to support approval of a site for twenty years, the term of early site permits under the proposed rule (the final rule provides that permits will have terms of between ten and twenty years). He points out that under the NRC's current regulations, NRC early decisions on site suitability issues raised in connection with a construction permit generally remain effective for only five years. See

10 CFR 2.606 and 10 CFR Part 52, Appendix Q (formerly in Part 50), paragraph 5. The Connecticut Siting Council strongly suggests that the State of Connecticut would be unable to participate in an NRC hearing on an application for an early site permit unless the application proposed a "specific" nuclear power plant. Finally, one commenter is concerned that land approved under an early site permit might never be used for a nuclear power plant, and thus development of the land for a non-nuclear use would have been needlessly delayed.

The Commission believes that early site permits can usefully serve as vehicles for resolving most site issues before large commitments of resources are made. Moreover, the Commission believes that a term of ten to twenty years for early site permits will make early site permits more useful for early resolution of site issues than would the five-year term in 10 CFR 2.606 and 10 CFR Part 52, App. Q, because the longer term will require less frequent reassessments of issues than would the shorter term. The five-year term is a function not of the reliability of the information available to make the decisions, but rather of the fact that the decisions made under those provisions may only resolve isolated site issues³ and anticipate site utilization in the very near term. The Commission is confident that there will be information adequate to support site approvals lasting up to 20 years. After all, the Commission licenses plants and their sites for operation for periods of up to twice twenty years. Where adequate information is not available, early site permits will not be issued.

The Commission is also confident that enough information on reactor design will be available in an early site permit proceeding to permit sound judgments about environmental impacts and thus to enable state and local agencies such as the Connecticut Siting Council to participate effectively in an early site permit proceeding. The Council says that for it to meaningfully participate in a decision on an application for an early site permit, the application would have to contain "projected emission, discharges, site impacts, safety factors, and exact operational parameters" * * * proposed for a site". It is just such information which both the proposed rule and the final rule would require of

³ Thus, the Commission declines to follow the suggestion of the engineering firm of Stone & Webster that partial early site permits be issued. It is not likely that resolutions of isolated site issues could have the degree of finality which a permit lasting ten to twenty years must have.

applicants for early site permits. See § 52.17(a).

Last, although the Commission acknowledges the possibility that non-nuclear development of a site would be postponed when a site is reserved for a nuclear plant and then a plant never built there, the Commission believes that such a possibility does not loom very large. Persons are not likely to go to the expense of applying for an early site permit unless there is a good prospect that the site will be used for a nuclear power plant. Moreover, it may be that many of the sites for which early site permits might be sought are already set aside for use by utilities; thus, even though non-nuclear development of the site might be postponed, non-utility uses of the site would not be. Last, even during the period in which an early site permit is in effect, non-nuclear uses of the site are not prohibited altogether. See § 52.35.

The comments on the proposed rule raise two other important issues concerning the rule's provisions on early site permits. The first issue concerns the division of authority between the Federal government and local governments over the siting of nuclear power facilities. The New York State Energy Office is concerned that the proposed rule leaves the impression that only an early site permit from the NRC is necessary to set aside land for a nuclear power plant. To the contrary, the rule does not, indeed, could not, change the division of authority between the Federal government and the states over the siting of nuclear plants. An early site permit constitutes approval of a site only under the Federal statutes and regulations administered by the Commission, not under any other applicable laws.

The last important issue raised by the comments on early site permits concerns the proposed rule's requirement that the application contain a plan for redress of the site in the event that the site preparation work and similar work and similar work allowed by 10 CFR 50.10(e)(1) is performed and the site permit expires before it is referenced in an application for a construction permit or combined license issued under the rule. The proposed rule required that the plan provide reasonable assurance that redress carried out under the plan would achieve a "self-maintaining, environmentally stable, and aesthetically acceptable site" which conformed to local zoning laws. The only important difference between the proposed and final rules on this subject is that the final rule requires such a plan only of applicants who wish to perform

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the activities allowed by 10 CFR 50.10(e)(1). NUMARC says that this requirement is "inherently unworkable" and would involve the Commission in matching redress against a variety of local zoning laws.

To the contrary, the rule's provisions on site redress, including the provision on zoning, are modeled on the redress requirements imposed on the Clinch River Breeder Reactor project. See *In the Matter of the U.S. Department of Energy, et al. (Clinch River Breeder Reactor Plant)*, LBP-85-7, 21 NRC 507 (1985). Moreover, the Commission has long required that applicants' environmental reports discuss compliance with local laws, including zoning laws. See 10 CFR 51.45(d). Apparently, NUMARC is not opposed to redress per se, for NUMARC's proposed revision of § 52.25 of the proposed rule speaks of the possibility that redress of adverse environmental impacts might be necessary. The Commission is only requiring that such redress follow the precedent established at Clinch River and proceed according to a plan incorporated in the early site permit. Containing a redress plan, the permit itself will constitute assurance that, if site preparation activities are carried out but the site never used for a nuclear power plant, the site will not be left in an unacceptable condition.

3. Combined Licenses

a. The Commission's Authority to Issue Combined Licenses

There are two important questions in connection with the proposed rule's provisions on combined construction permits and operating licenses with conditions. The first is whether the Commission has the authority to issue combined licenses. The second is whether, in cases where all design issues are resolved before construction begins, there should be a hearing after construction is complete, and if so, what issues should be considered at the hearing.

Comments on whether the Commission has the authority to issue combined licenses tend to mirror the commenters' views on what kind of hearing should be held after construction is complete. In other words, the discussion of this issue tends to be result-oriented. Thus, many who believe that there should be a hearing after construction, and that it should be as full a hearing as operating license hearings often are, argue that the Commission has no authority to issue combined licenses. They claim that section 185 of the Atomic Energy Act mandates a two-step licensing process

(for the text of section 185, see below). They often cite *Power Reactor Development Co. v. International Union of Electrical Workers*, 387 U.S. 396 (1961) as support for this interpretation of section 185. To these arguments, those who believe that there should be no hearing, or else only a highly restricted hearing, after construction is complete reply that section 161h of the Atomic Energy Act gives the Commission authority to combine a construction permit and an operating license in a single license (for the text of section 161h, see below).

A closer look at section 161h and 185 shows that section 161h clearly gives the Commission authority to combine a construction permit and operating license in a single license and that section 185 is not inconsistent with section 161h. Section 161h says, in pertinent part, that the Commission has the authority to "consider in a single application one or more of the activities for which a license is required by this Act [and] combine in a single license one or more of such activities . . ." 42 U.S.C. 2201. The plain language of this section clearly applies to the combining of construction permits and operating licenses, for both construction and operation of nuclear power facilities are "activities for which a license is required by this Act", namely by sections 101 and 185 of the Act, see 42 U.S.C. 2231 and 2235, and section 103a of the Act makes any license to operate a commercial nuclear power facility "subject to such conditions as the Commission may by rule or regulation establish . . ." See 42 U.S.C. 2233. Had Congress intended that construction permits and operating licenses for commercial nuclear power plants be excluded from the language of section 161h, surely Congress would have said so right in that section, for the plain language of that section invites their inclusion, and they are the most important licenses issued under the Act.

Section 185 is not to the contrary. Section 185 says, in pertinent part,

CONSTRUCTION PERMITS.—All applicants for licenses to construct . . . utilization facilities shall . . . be initially granted a construction permit. . . . Upon the completion of the construction . . . of the facility, upon the filing of any additional information needed to bring the original application up to date, and upon finding that the facility authorized has been constructed and will operate in conformity with the application as amended and in conformity with the provisions of this Act and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this Act, the Commission

shall thereupon issue a license to the applicant. . . .

42 U.S.C. 2235. To be sure, the section speaks in terms of a construction permit's being issued first, and then a license (presumably an operating license). However, the contrast between the two licenses is not fundamental to the section. The substance of the section is clearly indicated by the title of the section and by the list of findings the Commission must make. The section may be paraphrased thus: A construction permit is not a grant of authority to operate once construction is complete; before operation begins, the original application must be brought up to date, and the Commission must make certain affirmative findings. Thus the critical matter is not the separation of the two licenses, but the need for specific findings before operation. With this substance, both the proposed rule and the final rule are entirely in accord (the pertinent provisions of the final rule will be described in more detail below).

Moreover, in differentiating between a "construction permit" and a later "license", section 185 is not taking exception to section 161h. Section 185 does not say, for instance, "Notwithstanding anything in section 161h to the contrary, applicants shall be granted initially only a construction permit." By speaking of a separate issuance of a license after completion of construction, section 185 simply conforms itself to the simplest case, in which the licenses are in their elementary, uncombined states, and avoids having to make an already long section longer in order to acknowledge the case which section 161h makes possible. Moreover, section 185 acknowledges section 161h implicitly when it speaks not of a separate application for an operating license but simply of an updating of the original application. Therefore, neither the proposed rule nor the final rule can be faulted for not providing for a separate issuance of an operating license.

This interpretation of section 185 is confirmed by the legislative history of the section. In 1954, when Congress was considering proposed amendments to the Atomic Energy Act of 1946, representatives of the industry complained that the proposed section 185 required that construction of a facility be completed "under a mere construction permit, without any assurance at that stage that there will be issued any license to . . . operate it after it has met all the specifications of the construction permit." Atomic Energy Act of 1954: Hearings on S. 3323 and H.R. 8862 before the Joint Committee on

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Atomic Energy, 83rd Congress, 2d Session, 113 (May 10, 1954). These representatives proposed instead that power facility applicants should be able to obtain a single license covering all aspects of their activities—construction, possession of fuel, and operation—and that the license should contain the conditions the applicant would have to meet before operation of a constructed facility could begin. *Id.* at 113 and 118. On this proposal, the following colloquy took place:

Representative HINSHAW. That seems to me to be reasonable, that you should put all the conditions into 1 license that can be put into 1 license. That would be fair enough.

Chairman COLE. Would you mind my interruption? Why cannot that be done under the terms of the bill as it is now?

Mr. McQUILLEN [representing Detroit Edison]. I think it undoubtedly would be so operated.

Chairman COLE. Of course it would.

Id. at 119. Chairman Cole said this even though neither of the draft bills before the Committee contained the text of what is now section 161h. Twelve days later, as if to put the matter beyond all doubt, the Committee incorporated the present text of section 161h into both bills. The final rule provides for just such a single license, with conditions, as was discussed in this colloquy.

Power Reactor Development Co. v. Electrical Workers, 367 U.S. 396 (1961), is not to the contrary. The issue in that case was not whether the Commission had the authority to combine a construction permit with an operating license with conditions, but whether the Commission could postpone the ultimate safety findings until construction was complete. The Court ruled that the Commission could, and found support for its conclusion in section 185, which showed, the Court said, that "Congress contemplated a step-by-step procedure." 367 U.S. at 405. But the Court did not say, "section 185 mandates a separate issuance of an operating license, notwithstanding section 161h." The interpretation of section 161h of the Act was not at issue.

b. Hearings After Construction Is Complete

The first issue concerning hearings after completion of construction under a combined license is whether there should be such hearings at all. Most commenters, whatever their affiliation, believe that there should be the opportunity for such hearings. They disagree only over how limited the hearings should be. DOE argues that there should be no such hearings at all. As the principal support for its argument, DOE cites the section of the

Administrative Procedure Act (APA) which says, in effect, that adjudication is not required in cases in which the agency decision rests "solely on inspections, tests, or elections". See 5 U.S.C. 554(a)(3). Under Part 52's provisions of combined licenses, a combined license will contain the tests, inspection, and analyses, and acceptance criteria therefor, which are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the license and the Act. See § 52.97. DOE's argument amounts to the claim that the kind of tests and inspections spoken of in Part 52 is the same as the kind of tests and inspections spoken of in the APA.

The Commission agrees that findings which rest solely on the results of tests and inspections should not be adjudicated, and the final rule so provides. See § 52.103. However, not every finding the Commission must make before operation begins under a combined license will necessarily always be based on wholly self-implementing acceptance criteria and therefore encompassed within the APA exception. The Commission does not believe that it is prudent to decide now, before the Commission has even once gone through the process of judging whether a plant built under a combined license is ready to operate, that every finding the Commission will have to make at that point will be cut-and-dried—proceeding according to highly detailed "objective criteria" entailing little judgment and discretion in their application, and not involving questions of "credibility, conflicts, and sufficiency", questions which the Court in *UCS v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), held were marks of issues which should be litigated at least under the facts of that case. Indeed, trying to assure that the tests, inspections, and related acceptance criteria in the combined license are wholly self-implementing may well only succeed in introducing inordinate delay into the hearing on the application for a combined license.

Thus, the question becomes whether the rule should provide an opportunity for a post-construction hearing on the issues which are not excepted from adjudication by the APA. Whether the Commission could or should go further under its governing statutes we leave to future consideration and experience; this rule adopts an approach within the bounds of our legal authority which sets reasonable limits on any post-construction hearing. In this regard, every commenter who believes there should be such an opportunity for

hearing also believes that an issue in the hearing should be whether construction has been completed in accord with the terms of the combined license, and the final rule so provides. Also, under section 185 of the Atomic Energy Act, the Commission must find, prior to facility operation, that the facility has been constructed and will operate in conformity with the application and the rules and regulations of the Commission. This statutory finding, in the context of Subpart C of this rule, translates into two separate but related regulatory findings: that compliance with the acceptance criteria in the combined license will provide reasonable assurance that the facility has been constructed and will operate in accordance with the Commission's requirements, and that the acceptance criteria have in fact been satisfied. The former finding will be made prior to issuance of the combined license, and will necessarily be the subject of any combined license hearing under section 189a of the Act. The latter finding cannot by its nature be made until later, after construction is substantially complete, and therefore cannot by its nature be the subject of any hearing prior to issuance of the combined license. Thus, to the extent that an opportunity for hearing should be afforded prior to operation, it should be confined to the single issue that cannot have been litigated earlier—whether the acceptance criteria are satisfied. No commenter has offered any legal argument to the contrary.*

Commenters disagree greatly on whether any other issue should be considered in a hearing. The proposed rule provided that intervenors could contend that significant new information showed that some modification to the site or the design was necessary to assure adequate protection. To this, NUMARC responds that "no one could seriously consider ordering a new plant with the licensing uncertainties it would face." NUMARC proposes a complete rewrite of § 52.103, elements of which are discussed below. Several industry commenters point to the "added burdens" that applicants would be assuming under the proposed rule as grounds for severely limiting the issues for hearing. Rockwell International, for instance, claims that, with the hearing

* Section 185 also says that, prior to operation, there must be an "absence of good cause being shown to the Commission why the granting of the license would not be in accordance with the provisions of the Act." We think that this implicit opportunity to show "good cause" is satisfied by affording an opportunity for hearing on all findings that will be made prior to facility operation.

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under § 52.103, there will be four public hearings for each plant.

Public interest groups also take a dim view of the proposed rule's limitations on the hearing, though their reasons are not the industry's. UCS says that a licensing proceeding without uncertainty is a sham. OCRE goes further and asserts that the uncertainty should be distributed equally: "In a perfectly fair proceeding, [the] chance [of winning] would be 50%." The Maryland Nuclear Safety Coalition counts only two hearings for each plant. NIRS says that many problems with the current generation of reactors were cured under the full two-step licensing process.

This latter group of commenters appears to be opposed to any limitation on the post-construction hearing, for not one of them proposes a concrete alternative to the proposed rule's provisions on the hearing. UCS does say that the hearing should encompass "all issues that are material to the NRC's approval of an operating license for the plant", but that statement is either so general as to be just another way to put the question of what issues should be encompassed, or it is the claim that, when it comes time to determine whether the plant has been built in conformity with the terms of the combined license, all the operating license issues resolved before construction should be treated as if they had never been resolved. Many commenters do in fact seem to be making such a claim, for they contend against any limits on the post-construction hearing at the same time that they support the idea that design issues should be resolved before construction.

There have to be substantial limits on the issues that can be raised after construction. A licensing proceeding without any uncertainty in result may be a sham, but the bulk of the uncertainty should be addressed and resolved prior to, not after, construction. Part 52 does not remove uncertainty, it simply reallocates it to the beginning of the licensing process. The alternative apparently offered by opponents of limits on the post-construction hearing is, in effect, to double the uncertainty by considering every design issue twice.⁵

⁵ Even according to OCRE's notion of a "perfectly fair" proceeding, in which perfect fairness could be achieved by replacing judges with tosses of coins, design issues should not be resolved twice. If they were, intervenors would have two 50% chances to win—that is, to prevent operation of the plant—on design issues. But two even chances are equivalent to a 75% chance overall (e.g., the chance of coming up heads once in two tosses of a coin is 3 out of 4), and a proceeding in which one party has a 75% chance of winning is not, according to OCRE, "perfectly fair".

To the extent that these commenters offer any practical arguments in favor of this approach, they are not persuasive. Rockwell International may engage in some double-counting when it asserts that there are four public hearings for each plant, but when the Maryland Nuclear Safety Coalition says that the public can debate licensing issues only in an early site permit hearing and after construction, and therefore needs another hearing on design issues, it inexplicably simply ignores the mandatory public hearing on the application for the combined license and the opportunity for a public hearing on an application for a design certification. Moreover, contrary to NIRS, shortcomings in certain plants were not discovered because the licensing proceedings consisted of two steps but rather because design issues had to be resolved and construction made to conform to design before operation began. Part 52 provides for no less.

The final rule adopts a straight-forward approach to limiting the issues in any post-construction hearing on a combined license. As a matter of logic, every conceivable contention which could be raised at that stage would necessarily take one of two general forms. It would allege either that construction had not been completed—and the plant would not operate—in conformity with the terms of the combined license, or that those terms were themselves not in conformity with the Atomic Energy Act and pertinent Commission requirements. The final rule makes issues of conformity with the terms of the combined license part of any post-construction hearing, unless those issues are excepted from adjudication by the APA exception for findings which are based solely on the results of tests and inspections. The final rule does not attempt to say in advance what issues might fall under that exception. The comments are nearly unanimous in the opinion that issues of conformity with the combined license are properly encompassed in any post-construction hearing. Moreover, this limited opportunity for hearing is consistent with the Commission's belief that, even if section 185 did not speak at all to the need for a conformity finding, the Commission itself would need to make such a finding prior to operation in order to conclude, in the language of section 103, that operation is not inimical to the health and safety of the public. The final rule also provides that issues of whether the terms of the combined license are themselves inadequate are to be brought before the Commission under the provisions of 10

CFR 2.206. This approach to issues concerning the inadequacy of the combined license is well-founded in the discretion afforded the Commission under section 185 of the Act to determine what constitutes "good cause" for not permitting operation, and in the analogy which this approach has with the way construction permits are treated in operating license proceedings. Contentions alleging inadequacies in a construction permit are not now admissible in an operating license proceeding. Similarly, under the final rule, contentions alleging inadequacies in a combined license are not admissible in a post-construction hearing. Moreover, as we noted, this approach fully satisfies applicable law.

III. Other Issues

These are taken up section by section. Not discussed are most of the many changes made to the proposed rule for the sake of clarity, brevity, consistency, specificity, and the like. Worth noting, however, is that this Federal Register notice moves Appendices M, N, O, and Q of Part 50 to Part 52, so that, except for Subpart F of 10 CFR Part 2, all of the Commission's regulations on standardization and early resolution of licensing issues will be in one part of 10 CFR Chapter I. Readers are reminded that a comparative text showing all deletions from, and additions to, the proposed rule is available in the NRC's public document room.

1. Early Site Permits

At the suggestion of NUMARC and others, § 52.17 now gives applicants for early site permits the option of submitting partial or complete emergency plans, for final approval. Also, the section requires a redress plan only of applicants who wish to be able to perform the site preparation work and similar work allowed under 10 CFR 50.10(e)(1). Last, incorporating suggestions by UCS and others, the section says what factors should be considered in determining whether the area surrounding the site is "amenable" to emergency planning. To avoid suggesting that the Commission is adopting new emergency planning standards, § 52.17 abandons the proposed language of "amenability to emergency planning" in favor of language drawn from existing regulations on emergency planning.

Section 52.18 now makes clear that need for power is not a consideration at the early site permit stage.

In a number of places—§§ 52.23, 52.53, 52.87, and portions of other sections—the rule provides explicitly for ACRS

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review of issues to make clear that, even though the Atomic Energy Act does not, in terms, give the ACRS a role in the granting of early site permits, design certifications, or combined licenses, the ACRS is to have the same role with respect to these devices that it does with respect to construction permits, operating licenses, and the like. Wherever the ACRS is spoken of in Part 52, the intention is that the ACRS review the pertinent issues according to the standards specified therein.

As in the proposed rule, § 52.25 provides that the holder of an early site permit which contains a site redress plan, or the applicant for a construction permit or combined license which references such an early site permit, may perform the activities at the site allowed by 10 CFR 50.10(e)(1) without first obtaining the separate authorization required by § 50.10. The New York State Energy Office appears to take this to mean that the holder of the permit may perform the work without NRC approval. To the contrary, the early site permit which contains a redress plan is itself NRC approval. The law firm of LeBoeuf, Lamb, Leiby & MacRae, representing several utilities, argues that recent case law, especially *NRDC v. EPA*, 859 F.2d 156 (D.C. Cir. 1988), calls into question the Commission's limitations on non-safety related construction before issuance of a permit. LeBoeuf, Lamb concludes that § 52.25 and related portions of Part 52 should be deleted and the limitations in § 50.10 reviewed in the light of the case law. The Office of the General Counsel is undertaking a review and will recommend to the Commission if any changes to these sections are warranted. In the meantime, the Commission has decided to keep Part 52's provisions on site work intact and consistent with the related provisions in Part 50.

Section 52.27 now contains some of the material which appeared in § 52.29 of the proposed rule. OCRE objects to the provision in § 52.27 which treats an early site permit as valid beyond the date of expiration in proceedings based on applications which have referenced the early site permit. OCRE argues that this provision allows clever applicants to avoid new site requirements by referencing an early site permit just before it expires. At bottom, this is really an argument that early site permits should have shorter durations. The Commission is confident that the agency will be able to make site judgments which will retain their validity for the durations provided for in the final rule. However, the final rule does provide that the duration of an

original permit can be fixed at a term shorter than twenty years. See § 52.27(a).

In its comment on § 52.31, LeBoeuf, Lamb suggests that at renewal, the burden should be on the Commission to show why an early site permit should not be renewed, but that a given permit should be renewed only once, and for not more than ten years. The final rule retains the provisions of the proposed rule, because they provide more flexibility to both the Commission and holders of permits.

Much of the discussion in Sections II.1.f. and II.3.b. above on the finality of design certifications and hearings after construction is relevant to the provisions in § 52.39 on the finality of early site permits. Section 52.39 now states that, except in certain limited circumstances, issues resolved in a proceeding on an early site permit shall be treated as resolved in any later proceeding on an application which references the early site permit. One of the circumstances involves petitions under 10 CFR 2.206 that the terms of the early site permit should be modified; § 52.39(a)(2)(iii) assumes that the Commission shall resolve the issues raised by the petition in accordance with the standard in paragraph (a)(1) of the same section.

2. Design Certifications

In the proposed rule, § 52.45 contained material on scope of design and testing of prototypes. This material now appears, in modified form, in § 52.47. The phrase "essentially complete nuclear power plant," which is used in 52.45, is defined as a design which includes all structures, systems, and components which can affect safe operation of the plant except for site-specific elements such as the service water intake structure and the ultimate heat sink. Therefore, those portions of the design that are either site specific (such as the service water intake structure or the ultimate heat sink) or include structures, systems and components which do not affect the safe operation of the facility (such as warehouses and sewage treatment facilities) may be excluded from the scope of design. In addition, an essentially complete design is a design that has been finalized to the point that procurement specifications and construction and installation specifications can be completed and made available for audit if it is determined that they are required for Commission review in accordance with the requirements of § 52.47(a). Procurement specifications would have to identify the equipment and material

performance requirements and include the necessary codes, standards, and other acceptance and performance criteria to which the equipment and materials will be fabricated and tested. Construction and installation specifications would have to identify the criteria and methods by which systems, structures and components are erected or installed in the facility and include acceptance, performance, inspection, and testing requirements and criteria.

In § 52.47, the provisions on testing of prototypes have been reworded to avoid suggesting a presumption that designs of the affected class could be certified only after successful testing of a prototype. One individual and the U.S. Metric Association urged that the rule require that technical information in applications be in metric units. The NRC staff believes there is much merit in this proposal, but because the public has not had an opportunity to comment on it, it is not incorporated in the final rule. The NRC staff is considering proposing an amendment to Part 52 on the subject for Commission review.

On §§ 52.53, 52.55, and 52.63, see the remarks in Section III.1. above on §§ 52.23, 52.27, and 52.39, respectively. Also, § 52.55 of the proposed rule set ten years as the duration of certifications. The final rule extends the duration to fifteen years, to permit more operating experience with a given design to accumulate before the certification comes up for renewal or ceases to be available to applicants for combined licenses. In addition, § 52.63(a)(3) now limits Commission-ordered modifications of design-certified elements of a specific plant to situations in which the modification is necessary for adequate protection and special circumstances as defined in 10 CFR 50.12(a) are present. This double requirement does not mean that if a specific plant presents an undue risk but no special circumstances are present the plant will not be modified. Rather, the modification will take place through modification of the certified design itself, as provided for elsewhere in the same section.

Theoretically, it would be possible for an applicant whose application referenced a certified design to select designer(s) other than the designer(s) which had achieved certification of the standard design. Section 52.63(c) makes clear that such an applicant might be required to provide information which is normally contained in procurement specifications and construction and installation specifications and which is consistent with the certified design and available for audit by the NRC staff.

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Also, § 52.73 requires a demonstration that the new designer is qualified to supply the design. Last, the new designer would have to pay a portion of the cost of the review of the application for certification. See 10 CFR 170.12(d) and (e), as amended in this document. It is expected, as a practical matter, that applicants referencing a certified design would select the designer which had achieved certification of the standard design.

3. Combined Licenses

Section 52.73 now provides that the entity that obtained certification for a design must be the entity that supplies the design to an applicant for a combined license referencing the design, unless it is demonstrated that another entity is qualified to supply the design. This provision was added because an entity supplying the design should be qualified to do so; the entity which obtained the certification will have demonstrated its qualifications by obtaining the certification.

The last sentence of § 52.75 of the proposed rule now appears in § 52.79 of the final rule.

DOE proposes redrafting § 52.79 to require that no application for a combined license be considered unless it references a certified design. The final rule does not contain this restriction because there may be circumstances in which a combined license would properly utilize a non-standard design, and because such a restriction would mean, among other things, that every prototype would have to be licensed in a fully two-step process. In connection with § 52.79's provisions on submission of complete emergency plans, NIRS somehow concludes that Subpart C's provisions on emergency planning "extend", to the detriment of state and local governments, the "realism" doctrine set forth in 10 CFR 50.47 and recently affirmed in *Commonwealth of Massachusetts v. NRC*, 856 F.2d 378 (1st Cir. 1988). Apparently, NIRS believes that to settle emergency planning issues before construction is to "extend" the doctrine. To the contrary, although Subpart C assumes the "realism" doctrine, as it is entitled to do, it does not extend it. The doctrine remains precisely what it is in § 50.47. Moreover, the Commission's aim in drafting Subpart C's provisions on emergency planning has been to follow to the maximum feasible extent the National Governors' Association's Recommendation, at its 79th annual meeting, in 1987, that "... emergency plans should be approved by the NRC before it issues the construction permit for any new nuclear power plant."

Section 52.83 now provides that the initial term of a combined license shall not exceed forty years from the date on which the Commission makes the findings required by § 52.103(c).

On § 52.87, see the discussion in Section III.1. on § 52.23.

NUMARC proposed removing from § 52.89 any reference to design certifications, on the grounds that environmental impact statements should not be prepared in connection with certification rulemakings. The references in this section to design certifications are not meant to imply that environmental impact statements must be prepared in connection with design certifications.

Section 52.99 has been reworded to reflect more clearly that the inspection carried out during construction under a combined license will be based on the tests, inspections, analyses, and related acceptance criteria proposed by the applicant, approved by the staff, and incorporated in the combined license. Several industry commenters proposed adding to this section a requirement that the staff prepare a review schedule in connection with each combined license. However, such a requirement would be largely duplicative of a long-standing staff practice under which the staff prepares an annual inspection plan which allocates resources according to the priorities among all pending inspection tasks. The annual plan should assure the timeliness of staff review of construction under a combined license. Section 52.99 envisions a "sign-as-you-go" process in which the staff signs off on inspection units and notice of the staff's sign-off is published in the *Federal Register*. UCS says that it is "totally inappropriate" for the Commission, while construction is going on, to sign off on inspections and thus put matters beyond dispute which might otherwise be raised after construction is complete. However, UCS has misunderstood the Commission's role in the inspection process. While construction is going on, only the staff signs off on inspections. The Commission makes no findings with respect to construction until construction is complete. Section 52.99 has been modified to make this point more clearly.

UCS and other commenters object to the section in § 52.103 of the proposed rule which provided interested persons thirty days after notice of proposed authorization of operation in which to request a hearing on the specified grounds. Yet the thirty-day requirement was drawn from section 189a of the Act. Neither the Act nor Part 52 imagines

that it would be acceptable for interested persons to wait until notice is received before they examine the record of construction. These time periods are like the sixty-day limit in the Hobbs Act, 28 U.S.C. 2344, for petitions for direct judicial review of an agency rule. These limits assume that the petitioner is familiar with the fundamentals of the record before the limited period begins. The limited period is then provided for consideration of options, consultation with other interested persons, and drafting of pleadings. In any event, the final rule provides sixty days, in consideration of the pleading standard § 52.103 imposes on petitioners. Moreover, as noted above, to assist interested persons in becoming familiar with the construction record, § 52.99 now provides that notice of staff approvals of construction will be published periodically in the *Federal Register*. Any hearing held under § 52.103(b)(2)(1) will use informal procedures to the maximum extent practicable and permissible under law. In particular, the Commission intends to make use of the provisions in 5 U.S.C. 554, 556, and 557 which are applicable to determining applications for initial licenses. Under § 52.103(b)(2)(ii), the NRC staff will review the § 2.206 petition and make appropriate recommendations to the Commission concerning the petition. The Commission itself will issue a decision granting or denying the petition in whole or in part.

Finally, Urenco, Inc., is concerned that the last subsection of § 52.103 not be taken to suggest that the Commission would have to make separate findings for each of the numerous "modules" of a gaseous diffusion facility. The issue of how the modules of a gaseous diffusion facility should be licensed is beyond the scope of this rulemaking; § 52.103 therefore cannot suggest that the Commission would have to make separate findings for each of the modules of such a facility.

IV. Replicate Plant Concept

In the notice of proposed rulemaking, the Commission published a revised policy statement on replication of plants and invited comment on the revised policy. See 53 FR 32067, col. 3, to 32068, col. 1. Several industry commenters remarked that the statement's requirement that the application for replication be submitted within five years of the date of issuance of the staff safety evaluation report for the base plant effectively made replication unavailable for the short term. They recommended removing the restriction,

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or at least lengthening it. The Commission has decided to retain this restriction. The five-year figure is in fact already a lengthening of the analogous figure in the immediately preceding version of the policy statement. The restriction is a reflection of the Commission's belief that applications which reach back further than a given number years probably ought to be considered as custom-plant applications.

Policy on Replication

The replicate plant concept involves an application by a utility for a license to construct or operate one or more nuclear power plants of essentially the same design as one already licensed.

The design of the plant already licensed (termed the base plant design) may be replicated at both the construction permit and operating license stages, and in applications for combined construction permits and operating licenses in a one-step licensing process. Replication of an approved base plant design at the construction permit stage is a prerequisite for its replication at the operating license stage. Although replication of the base plant design at the operating license stage is not mandatory, that is, the operating license application may be submitted as a custom plant application, it is strongly recommended.

An application for a replicate plant must demonstrate compliance with the four licensing requirements for new plant designs as set forth in the Commission's Severe Accident Policy Statement (50 FR 32138; August 8, 1985).

Each application proposing to replicate a previously licensed plant will be subjected to a qualification review to determine the acceptability of the base plant for replication and to define specific matters that must be addressed in the application for the replicate plant. A further requirement for qualification is that the application for a replicate plant must be submitted within five years of the date of issuance of the staff safety evaluation report for the base plant. The qualification review will consider the following information:

- (1) The arrangement made with the developers of the base plant design for its replication;
- (2) The compatibility of the base plant design with the characteristics of the site proposed for the replicate plant;
- (3) A description of any changes to the base plant design, with justification for the changes;
- (4) The status of any matters identified for the base plant design in the safety evaluation report, or

subsequently identified by the ACRS or during the public hearings on the base plant application as requiring later resolution;

(5) Identification of the major contractors, with justification for the acceptability of any that are different than those used by the base plant applicant; and

(6) A discussion of how the replicate plant design will conform to any changes to the Commission's regulations which have become effective since the issuance of the license for the base plant.

Environmental Impact—Categorical Exclusion

The final rule amends the procedures currently found in Part 50 and its appendices for the filing and reviewing of applications for construction permits, operating licenses, early site reviews, and standard design approvals. As such they meet the eligibility criteria for the categorical exclusion set forth in 10 CFR 51.22(c)(3). That section applies to "[a]mendments to . . . Part [] 50 . . . which relate to (i) procedures for filing and reviewing applications for licenses or construction permits or other forms of permission. . . ." As the Commission explained in promulgating this exclusion, "[a]lthough amendments of this type affect substantive parts of the Commission's regulations, the amendments themselves relate solely to matters of procedure. [They] . . . do not have an effect on the environment." 49 FR 9352, 9371, col. 3 (March 12, 1984) (final environmental protection regulations).⁶ Accordingly, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with these final rules.⁷

⁶ It makes no substantive difference for the purpose of the categorical exclusion that the amendments are in a new Part 52 rather than in Part 50. The amendments are, in fact, amendments to the Part 50 procedures and could have been placed in that part.

⁷ The requirements concerning testing of full-size prototypes of advanced reactors, see § 52.47, may appear not to fit into the category excluded by § 51.22(c)(3), since to comply with the requirements, an applicant may have to build and test a prototype plant, an act clearly with an environmental impact. Nonetheless, § 52.47 is eligible for exclusion under § 51.22(c)(3). Unlike, for instance, the promulgation of a safety rule which applies to operating plants, the formal action of promulgating § 52.47 has only a potential impact on the environment. That impact becomes actual only if a designer chooses to pursue certification of a certain kind of advanced design. Under the present circumstances, no meaningful environmental assessment or impact statement can be made. Cf. 49 FR at 9372, cols. 2-3 (entering into an agreement with a State under Section 274 of the Atomic Energy Act has no immediate or measurable environmental impact and therefore warrants a categorical exclusion). The issuance of the

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements have been submitted to the Office of Management and Budget (OMB) for any review appropriate under the Act. The effective date of this rule provides for the ninety days required for OMB review of the information collection requirements contained in the rule.

Public reporting burden for this collection of information is estimated to average 22,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing the reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records and Reports Management Branch, Division of Information Support Services, Office of Information and Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Paperwork Reduction Project (3150-0000), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

As presently constituted, the American population of nuclear power reactors consists largely of one-of-a-kind designs. Experience has shown that the highly individualistic character of this population has consumed enormous resources in the processes of design, construction, and safety review. Because, typically, design of a plant was not complete when construction of it began, many safety questions were not resolved until late in the licensing proceeding for that plant. The late resolution of questions introduced great uncertainty into proceedings, because the process of resolution often entailed lengthy safety reviews, construction delays, and backfits. Moreover, the low incidence of duplication among designs has meant that experience gained in the construction and operation of a given plant has often not been useful in the construction and operation of any other plant, and has made the generic

construction permit and operating license for a prototype plant would, of course, be a major federal action with a significant impact on the environment, and would entail the preparation of an environmental impact statement. Cf. *id.*, col. 3 (the States must prepare detailed environmental analyses before they license certain activities).

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resolution of continuing safety issues more complicated.

In the face of this experience with a population of unique plants, there have long been fundamentally only three alternatives for Commission action, the last two of them not mutually exclusive: either make no effort to bring about an increased degree of standardization, or propose legislation on standardization, or enact by rulemaking as much of a scheme for promoting standardization as the Commission's current statutory authority permits. The Commission has for some time concluded against the first alternative, having decided that a substantial increase in standardization would enhance the safety and reliability of nuclear power plants and require fewer resources in safety reviews of plants, and that the Commission should have in place provisions for the review of standardized designs and other devices for assuring early resolution of safety questions. The Commission has therefore pursued standardization both by proposing legislation—without success—and by promulgating rules, in particular Appendices M, N, and O to Part 50 (now Part 52) of 10 CFR. Lacking legislation on standardization, the Commission believes that the most suitable alternative for encouraging further standardization is to fill out and expand the Commission's regulatory scheme for standardization and early resolution of safety issues.

Therefore, the Commission now promulgates a new set of regulations, to be placed in a new part in 10 CFR, Part 52. This new part facilitates the early resolution of safety issues by providing for pre-construction-permit approval of power plant sites, Commission certification of standardized designs, and the issuance of licenses which combine permission to construct a plant with permission to operate it once construction of it has been successfully completed. Ideally, a future applicant will reference an approved site and a certified design in an application for a combined license, thus obviating the need for an extensive review of the application and construction. The provision in Part 52 for Commission certification of designs has the additional objective of encouraging the use of standardized designs, thereby adding to the benefits of early resolution the safety benefits of accumulated experience and the economic benefits of economies of scale and transferable experience.

Quantification of the costs and benefits of this rulemaking is probably not possible. Much depends on the extent to which the industry pursues

standardization. Clearly, if the Commission and the industry spend the resources necessary to certify a score of designs and then no applicant references any of them, those resources will have been largely wasted. On the other hand, it is just as clear that if a score of plants uses a single certified design, there will have been a great saving of the resources of the industry, the agency, and the interested public alike. To be added to the uncertainties surrounding the industry's response, there are also uncertainties concerning the costs of the certification process, and the costs of developing the designs themselves, especially the advanced designs, which may require testing of prototypes. However, if the industry finds it in its interest to proceed with the development of nuclear power, there is every reason to expect that the safety and economic benefits of standardization will far outweigh the upfront costs of design and Commission certification: Review time for applications for licenses will be drastically reduced, the public brought into the process before construction, construction times shortened, economies of scale created, reliability of plant performance increased, maintenance made easier, qualified vendor support made easier to maintain, and, most important, safety enhanced.

Thus, the rationale for proceeding with this rulemaking: There is no absolute assurance that certified designs will in fact be used by the utilities; however, it is certain that if the reasonably expected benefits of standardization are to be gained, then the Commission must have the procedural mechanisms in place for review of applications for early site approvals, design certifications, and combined licenses. The most fundamental choice is, of course, the industry's, to proceed or not with standardization, according to its own weighing of costs and benefits. But the Commission must be ready to perform its review responsibilities if the industry chooses standardization.

Regulatory Flexibility Act Certification

The final rule will not have a significant impact on a substantial number of small entities. The final rule will reduce the procedural burden on NRC licensees by improving the reactor licensing process. Nuclear power plant licensees do not fall within the definition of small businesses in section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administration in 13 CFR Part 121, or the Commission's Size Standards published at 50 FR 50241

(Dec. 9, 1985). The impact on intervenors or potential intervenors will be neutral. For the most part, the final rule will affect the timing of hearings rather than the scope of issues to be heard. For example, many site and design issues will be considered earlier, in connection with the issuance of an early site permit or standard design certification, rather than later, in connection with a facility licensing proceeding. Similarly, a combined licensed proceeding will include consideration of many of the issues that would ordinarily be deferred until the operating license proceeding. Thus, the timing rather than the cost of participating in NRC licensing proceedings will be affected. Intervenors may experience some increased preparation costs if they seek to reopen previously decided issues because of the increased showing that will be required. Once a hearing commences, however, an intervenor's costs should be decreased because the issues will be more clearly defined than under existing practice. Therefore, in accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that the final rule will not have a significant economic impact on a substantial number of small entities and that, therefore, a regulatory flexibility analysis need not be prepared.

Backfit Analysis

This rule does not modify or add to the systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to construct or operate a facility. However, it could be argued that this rule modifies and adds to the procedures or organization required to design a facility, since the rule adds to, or else at least spells out, the requirements for applicants for design certifications. Moreover, the rule, at the very least, substantially modifies the expectations of anyone who had hoped to apply for a design certification under the previously existing section 7 of Appendix O, particularly of any such who presently hold preliminary or final design approvals under that Appendix.

Nonetheless, the Commission believes that the backfit rule does not apply to this rule and, therefore, that no backfit analysis pursuant to 10 CFR 50.109(c) is required for this rule. The backfit rule was not intended to apply to every action which substantially changes settled expectations. Clearly, the backfit rule would not apply to a rule which would impose more stringent requirements on all future applicants for construction permits, even though such a

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rule arguably might have an adverse impact on a person who was considering applying for a permit but had not done so yet. In this latter case, the backfit rule protects the construction permit holder, not the prospective applicant, or even the present applicant. The final rule below is of the character of such a hypothetical rule. The final rule arguably imposes more stringent requirements for design certification and thereby may have an adverse impact on some persons. However, the effects of the final rule will be largely prospective, and the rule does not require any present holder of a design approval (no person holds a design certification) to meet new standards in order to remain in possession of such an approval.

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear Materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

10 CFR Part 170

Byproduct material, Nuclear materials, Nuclear power plants and reactors, Penalty, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended,

the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adding to 10 CFR Chapter I a new Part 52 and accepting amendments to 10 CFR Parts 2, 50, 51, and 170:

54 FR 19632
Published 5/8/89

10 CFR Part 52

RIN 3150-AC61

Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors

Correction

In rule document 89-8832 beginning on page 15372 in the issue of Tuesday, April 18, 1989, make the following corrections:

§ 52.43 [Corrected]

1. On page 15390, in the first column, in § 52.43(b), in the fourth line, "is" should read "in".

§ 52.68 [Corrected to read § 52.63]

2. On page 15392, in the second column, § 52.68 Finality of standard design certification should read § 52.63 Finality of standard design certification.

54 FR 50735
Published 12/11/89.

10 CFR Parts 2, 50, 51, 52, and 170

RIN 3150-AC61

Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

SUMMARY: This document corrects a final rule published on April 18, 1989 (54 FR 15372), which provides for the issuance of early site permits, standard design certifications, and combined construction permits and operating licenses with conditions for nuclear power reactors. The action is necessary to correct an amendatory instruction that contained an incorrect paragraph identification.

FOR FURTHER INFORMATION CONTACT:

Michael T. Lesar, Chief, Rules Review Section, Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-7758.

SUPPLEMENTARY INFORMATION: In the April 18, 1989, edition of the Federal Register, in the right-hand column of

page 15398, make the following correction to amendatory instruction number 16:

In the amendatory instruction for 10 CFR 51.20, the paragraph designated as paragraph (a)(6) is correctly designated as paragraph (b)(6).

Dated at Bethesda, Maryland, this 5th day of December 1989.

For the Nuclear Regulatory Commission,
Donnie H. Grimsley,
Director, Division of Freedom of Information and Publications Services, Office of Administration.

56 FR 31472
Published 7/10/91
Effective 8/9/91

Revision of Fee Schedules; 100% Fee Recovery

See Part 170 Statements of Consideration

56 FR 37828
Published 8/9/91
Effective 8/9/91

Revision of Fee Schedules; 100% Fee Recovery, Correction

See Part 170 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

PART 52 • STATEMENTS OF CONSIDERATION

57 FR 60975
Published 12/23/92
Effective 1/22/93
Comment period expires 2/22/93

10 CFR Part 52

RIN 3150-AE42

Combined Construction Permits and Operating Licenses; Conforming Amendments

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission ("NRC" or "Commission") is amending its regulations governing the issuance of combined construction permits and operating licenses for nuclear power plants. The final rule incorporates all the changes to these provisions that are necessary because of the enactment of licensing reform legislation. The amendments serve to conform the regulations to the provisions of title XXVIII of Public Law 102-486, the "Energy Policy Act of 1992," signed into law on October 24, 1992.

DATES: The rule becomes effective January 22, 1993. Submit comments by February 22, 1993.

ADDRESSES: Submit written comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attn: Docketing and Service Branch. Hand deliver comments to: 11555 Rockville Pike, Rockville, Maryland 20852, between 7:45 a.m. and 4:15 p.m. Federal workdays. (Telephone 301-504-1966.)

Copies of comments received may be examined at the NRC Public Document Room at 2120 L Street NW., Washington, DC 20555, in the lower level of the Gelman Building.

FOR FURTHER INFORMATION CONTACT: L. Michael Rafky, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: 301-504-1606.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Section-by-section analysis.
- III. Environmental impact: Categorical exclusion.
- IV. Paperwork Reduction Act Statement.
- V. Regulatory analysis.
- VI. Backfit analysis.

I. Background

Title XXVIII of Public Law 102-486, the "Energy Policy Act of 1992," signed into law on October 24, 1992, amends the Atomic Energy Act to facilitate the standardization of nuclear power plants and to provide explicit authority for the issuance of combined construction permits and operating licenses. The legislation largely codifies the Commission's regulations in 10 CFR part 52. However, the legislation also makes several changes to the licensing process set forth in those regulations.

The purpose of this rule is to make those changes necessary to conform the language of part 52 to the provisions of the newly enacted Public Law. Because these changes are limited to incorporating the language of that statute into the regulations, the NRC finds, pursuant to 5 U.S.C. 553(b)(3), that there is good cause not to seek public comment on this rule, as such comment is unnecessary. The rule will become effective 30 days after the date of publication in the Federal Register. Nevertheless, any interested member of the public who believes that the Commission has not accurately conformed part 52 to title XXVIII of Public Law 102-486, the Energy Policy Act of 1992, is invited to submit comments on this matter within 60 days of the date of publication of this rule.

The final rule incorporates all necessary changes resulting from enactment of licensing reform legislation. The significant changes—

(1) Provide that the Commission may authorize a plant to operate during the pendency of a post-construction hearing on a combined construction permit and operating license (combined license) if it makes certain specified safety findings. Previously, under part 52, a post-construction hearing had to be completed prior to operation;

(2) Provide the Commission with the discretion to order use of either formal or informal procedures for a post-construction hearing on a combined license. Previously, under part 52, only formal procedures were permitted;

(3) Provide the Commission with the discretion to permit post-construction license amendments to a combined license, notwithstanding the pendency of a hearing request, to become effective if the Commission makes a finding of "no significant hazards considerations." Previously, part 52 required that hearings be completed prior to commencement of operation;

(4) Eliminate the requirement that there be a pre-operational antitrust review by the Department of Justice of a combined license if there have been significant developments from an antitrust perspective arising since the issuance of the combined license; and

(5) Eliminate the requirement that a combined license include the earliest and latest construction completion dates.

The amendments to the rule incorporate these changes as well as other less significant changes to ensure that part 52 conforms as closely as possible to the statutory language.

In addition, 10 CFR 52.8 is being amended to correct a typographical error and to make revisions of a minor administrative nature.

II. Section-by-Section Analysis

The following analysis of those sections that are affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, U.S. Code of Federal Regulations.

Section 52.8 Information Collection Requirements: OMB Approval

This section is revised to correct data provided in accordance with an Office of Management and Budget (OMB) regulation regarding the information collection requirements contained in this part. In paragraph (a), a typographical error in the OMB approval number is corrected. In paragraph (b), four sections are added to the list of sections containing approved information collection requirements. These revisions are of a minor administrative nature and are made to improve the accuracy of the information in this section and to comply with OMB regulations.

Section 52.79 Contents of Applications; Technical Information

The language of this section provides explicitly that the inspections, tests, analyses, and acceptance criteria must

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include those applicable to emergency planning and that the objective of the inspections, tests, analyses, and acceptance criteria is to provide reasonable assurance that the facility was constructed and will operate in conformity with the combined license, the Atomic Energy Act, and the Commission's rules and regulations.

Section 52.83 Applicability of Part 50 Provisions

This section has been revised to remove the applicability of certain provisions of part 50 which are no longer required under the legislation. These include § 50.55 (a), (b) and (d), which had required a construction permit for a nuclear power reactor to state the earliest and latest dates for the completion of the facility's construction, and other conditions thereof; and § 50.58, which had required applications for construction permits or operating licenses to be reviewed by the Advisory Committee on Reactor Safeguards (ACRS). A final change to § 52.83 is the substitution of a reference to "§ 52.99" for "§ 52.103." This was done because the findings to which § 52.83 refers are now contained in § 52.99.

Section 52.97 Issuance of Combined Licenses

This section has been amended with regard to making amendments to a combined license immediately effective under the so-called "Sholly Amendment." Under the Energy Policy Act, an amendment to a combined license can be made immediately effective if the Commission determines there are no significant hazards considerations. This section of the rule has been revised to incorporate the statutory provisions and previously issued Commission regulations implementing the "Sholly" amendment. The Commission, however, stresses that it will not look with favor upon license amendments to a combined license filed shortly before planned operation that could have the effect of undermining standardization or changing the scope of imminent or pending hearings on conformance issues.

Section 52.99 Inspection During Construction

Like the other amended sections of part 52, this section has been changed to track the language of the Energy Policy Act. In this case, the only change is to require explicitly that, prior to operation under a combined license, the Commission shall find that the prescribed acceptance criteria are met.

Section 52.101 Pre-Operational Antitrust Review

This section, which has been deleted as a result of the new legislation, had provided for a pre-operational antitrust review of a combined license by the Department of Justice if there had been significant antitrust-related developments arising after the issuance of that license.

Section 52.103 Operation Under a Combined License

In an effort to adhere as closely as possible to the new statutory requirements of the Energy Policy Act, the NRC has replaced most of its old § 52.103 with the text of section 2802 of that Act. Under the revised language, any request for a post-construction hearing must show, prima facie, both that one or more of the acceptance criteria are not or will not be met, and those specific operational consequences of nonconformance that would be contrary to providing reasonable assurance that the public health and safety will be adequately protected. The Commission may permit interim operation of a facility pending a hearing if it determines that this assurance exists. The Commission has the discretion to decide if any post-construction hearing will use formal or informal hearing procedures, and it must state publicly the reasons for choosing either set of procedures. The Commission must find, prior to operation of the facility, that the acceptance criteria have been met. The procedures with regard to § 2.206 petitions remain the same. Additionally, there is now a new paragraph (g), which is a modified version of old § 52.103(c). The Commission has done nothing in this section other than to incorporate the language of the Energy Policy Act into its rule.

Commissioner Curtiss' Separate Views on Final Rules Amending 10 CFR Part 52 To Incorporate Provisions of the Energy Policy Act

With one exception, I approve the above final rulemaking changes to incorporate the provisions of the Energy Policy Act. The one exception concerns the proposed amendment to 10 CFR 52.97(b) to incorporate the so-called "Sholly" authority. For the reasons set forth below, I cannot agree with the recommendation to amend 10 CFR 52.97(b) for the purpose of extending the provisions of the "Sholly" amendment contained in section 189a.(2) of the Atomic Energy Act to amendments to combined licenses (COLs) prior to authorization to operate.

Indeed, I believe that the adoption of this provision will serve to detract from the overall objective that we have established in Part 52 to achieve and maintain a high degree of standardization.

When § 52.97(b) was originally enacted by the Commission, it was adopted for the sole purpose of ensuring that the level of standardization reflected in a COL, once issued, would not be diluted by subsequent changes that a COL holder might seek during construction. Recognizing that such changes should not be foreclosed altogether, the approach taken by the Commission in § 52.97(b) was to establish a stringent procedural hurdle for the COL holder who wishes to seek a change in its COL, once issued: Section 52.97(b) provides that any such changes would be treated as amendments to the COL (thereby requiring a hearing upon request), and that the hearing on any such amendments would have to be completed before operation of the facility.

This approach, the Commission reasoned at the time, would serve to provide yet another strong disincentive against a COL holder seeking changes to a COL, once issued.¹ Indeed, it was exactly this point that the Commission emphasized in its response to a question on this matter from one of our oversight Committees:

The Commission did not extend Sholly as a policy choice because it wanted to discourage late changes to combined licenses or to the ITAAC therein. Such changes could have the effect of undermining standardization or changing the scope of imminent or pending hearings on conformance issues.

Hearing Before the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works, United States Senate, on the Nuclear Licensing Provision in S.1220, the National Energy Security Act of 1991, January 23, 1992 (Committee Print), p. 56 (emphasis added).

This same point was set forth quite persuasively by Chairman Selin in that same hearing:

The Commission specifically did not put [the "Sholly" provision] into part 52. We are not interested in encouraging design changes, particularly in the standardization area * * *

We want to discourage changes—random changes—even if they don't, in themselves.

¹ It should be noted that a COL holder is permitted to make certain changes in its COL, if those changes satisfy the criteria of the § 50.59-type change procedure. These § 50.59-type changes are not considered amendments, and hence would not be subject to the requirements of § 52.97(b).

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have a health and safety impact, because we believe the totality of the configuration has a health and safety impact . . . so we consciously did not put that in part 52.

Remarks of Chairman Selin, *id.* p. 22.

In my view, the fundamental policy of § 52.97(b) remains equally sound today. Hence, the only question that remains, in my judgment, is whether the recently-enacted Energy Policy Act of 1992 dictates a different result. In this regard, I would note that the Act gives the Commission the discretion to decide whether to modify part 52 in a manner that would permit COL amendments to be made immediately effective where such amendments involve no significant hazards considerations. Of particular note, section 2803 of the Energy Policy Act provides that—

The Nuclear Regulatory Commission shall modify part 52 of title 10, Code of Federal Regulations, to conform with sections 185b. and 189.1(B) of the Atomic Energy Act of 1954, as amended by sections 2801 and 2802 of this Act, not later than 1 year after the date of the enactment of this Act (emphasis added).

This provision, which enumerates those sections of the Act for which we must adopt conforming regulations, is limited by its terms to sections 2801 and 2802 of the Act. It does not reference section 2804, the section of the Act containing the "Sholly" provision. As a consequence, I read the Act as giving the Commission the discretion to decide whether we wish to extend the "Sholly" authority to COL amendments.

In light of the discretion that we have, and based upon the reasons set forth above, I would not modify section 52.97(b), as proposed in this rulemaking.² In all other respects, I approve the changes to part 52 that are proposed herein.

Additional Views of Commissioners Rogers, Remick, and de Planque

If the Commission were to leave § 52.97(b) as it stood before enactment of the Energy Policy Act, requiring a prior hearing on every proposed postconstruction amendment to a combined license, our regulations would have been inconsistent with the Act. This is the view of the

² In the alternative, if it is the will of the majority of the Commission to modify § 52.97(b), I believe this is a matter that deserves—and indeed requires—public comment. I say this not only because of the significant policy considerations involved here, but more importantly because, as a legal matter, if Congress has conferred upon the Commission the discretion to decide what approach to take in the regulations that we adopt to implement the statute, the justification for publishing this change as a final rule (*i.e.* that we are simply adopting the language of the newly-passed Act) no longer obtains.

Commission's General Counsel, and we adopt it as our own. It is clear that Congress intended that the Sholly amendment be available for use with each combined license, because Congress did in fact amend section 189a.(2) of the Atomic Energy Act to make the Sholly provisions available for use with each combined license. Congress thereby gave us the discretion in each individual case to decide, according to the Sholly provisions, whether to make an amendment immediately effective, but Congress did not give us the discretion to write rules which directly contradict the newly amended Sholly provisions. Standardization is afforded considerable protection by part 52. We have no cause to try to protect it further by, in effect, trying to rewrite the newly amended Sholly provisions.

We would emphasize that the statutory provisions merely give us the discretion to make an amendment to a combined license immediately effective if it satisfies the criteria of section 189(a) of the Atomic Energy Act. The Commission would retain the discretion to require a prior hearing in a specific case.

III. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental assessment nor an environmental impact statement has been prepared for the final regulation.

IV. Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0151.

V. Regulatory Analysis

The Nuclear Regulatory Commission has made statutorily mandated changes in 10 CFR part 52 in order to conform it to the language of the Energy Policy Act of 1992. These changes reflect Congressionally mandated changes to the NRC's licensing process for power reactors. Only future applicants for combined construction permits and operating licenses will be affected by the changes to the regulations.

VI. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not

apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these amendments are required by law and do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is amending 10 CFR Chapter I as follows:

58 FR 21904
Published 4/26/93
Effective 5/26/93

Training and Qualification of Nuclear Power Plant Personnel

See Part 50 Statements of Consideration

58 FR 69220
Published 12/30/93

10 CFR Part 52

RIN 3150—AE42

Combined Licenses; Conforming Amendments; Response to Post-Promulgation Comment

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule: comment response.

SUMMARY: The Nuclear Regulatory Commission (NRC or Commission) is addressing the one comment that was received after issuance of the final rule that amended the regulations concerning combined licenses to incorporate changes required by licensing reform legislation. This notice

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is necessary to inform the public of the NRC's response to this post-promulgation comment.

DATES: The final rule became effective January 22, 1993. Comments were due by February 22, 1993.

FOR FURTHER INFORMATION CONTACT: Grace H. Kim, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-504-3605.

SUPPLEMENTARY INFORMATION:

Background

In 1992 Congress passed, and the President signed, the Energy Policy Act of 1992 (Pub. L. 102-486, 106 Stat. 2776). Title XXVIII of that Act amended (in part) the nuclear power plant licensing provisions of the Atomic Energy Act. The new legislation largely codified existing NRC regulations in 10 CFR part 52. It also made several changes in the part 52 licensing process.

Accordingly, on December 23, 1992 (57 FR 60975), the Commission issued a final rule amending part 52 to "incorporate[] all the changes to these provisions that are necessary because of the enactment of licensing reform legislation." The Commission found prior public comment on the new amendments unnecessary because the "changes are limited to incorporating the language of [the Energy Policy Act] into the regulations." *Id.* The Commission invited comment by "any interested member of the public who believes that the Commission has not accurately conformed part 52 to the Energy Policy Act." *Id.*

When the Commission issues a final rule without notice and comment it is required, under 10 CFR 2.804(f), to provide a 30-day "post-promulgation" comment period and to publish, in the Federal Register, an evaluation of the comments and any revisions of the rule made as a result of the comments and their evaluation.

Only one comment was received. It was submitted on February 22, 1993, by the Nuclear Management and Resources Council ("NUMARC"). The NUMARC comment, while "agree[ing]" that the part 52 amendments "incorporate the relevant language of title XXVIII of the Energy Policy Act," sought "clarification" of "certain ambiguities" created by the "literal transcription." The NRC is not revising 10 CFR part 52 as a result of the comment and its evaluation.

Analysis of Public Comment

The Commission sees no need to alter the amended part 52; but, pursuant to 10 CFR 2.804(f), offers the following response to the four points made in NUMARC's comment letter.

1. Section 52.99, Inspection During Construction

NUMARC is concerned that the amended language of 10 CFR 52.99, which incorporates section 2801 of title XXVIII of the Energy Policy Act of 1992, will require the Commission itself, rather than the NRC staff, to oversee the ITAAC process (*i.e.*, the inspections, tests, analyses and acceptance criteria required for plant operation under part 52). The statutory language and the amended regulation state that after issuance of a combined license, "the Commission shall ensure that the required inspections, tests and analyses are performed, as well as find, prior to operation of the facility, that the prescribed acceptance criteria are met." The original part 52 specified that the NRC staff would oversee the ITAAC process.

Statutory or regulatory references to the "Commission" are commonly understood to allow the Commission to act through its staff. Here, NUMARC is correct in its understanding that the change in the wording of § 52.99 to incorporate the language of the Energy Policy Act does not alter the role of the NRC staff. The NRC staff will have principal responsibility for overseeing the ITAAC process. Assigning this day-to-day role to the Commissioners themselves would be entirely unworkable. The Commission itself remains responsible under the amended § 52.99, as it was under the original part 52, for the ultimate finding that the acceptance criteria have been met. See 10 CFR 52.103(g).

2. Section 52.103, Operation Under Combined License

NUMARC requested that the Commission amend 10 CFR 52.103 to specifically incorporate 5 U.S.C. 554(a)(3), a section of the Administrative Procedure Act (APA) exempting certain agency decisions (those resting "solely on inspections, tests, or elections") from formal APA procedural requirements. That provision was cited in the original version of part 52.

In revising § 52.103, the Commission essentially tracked the language used by Congress in the Energy Policy Act. Congress did not cross-reference the APA in that Act, and neither does the revised § 52.103. No cross-reference is necessary to invoke the APA, which unquestionably applies to NRC licensing proceedings under part 52. See 42 U.S.C. 2231. Thus, § 52.103's failure to mention the APA's "inspections or tests" exemption does not prevent applying the exemption in appropriate situations.

3. Section 52.97, Issuance of Combined License

NUMARC agrees that the NRC properly interpreted section 2804 of the Energy Policy Act to make the so-called "Sholly" procedure applicable to combined licenses. The "Sholly" approach allows the Commission to make an amendment to a combined license immediately effective (*i.e.*, prior to a hearing) if it makes a finding that there are no significant hazards considerations. The Commission altered the language of 10 CFR 52.97 to reflect this express statutory authority. Because NUMARC's comment embraces § 52.97 as sound law, and suggests no change in it, no further response is necessary.

4. Statement of Considerations on § 52.97

NUMARC expresses reservations about language in the statement of considerations on the revised 10 CFR 52.97 stating that the Commission "will not look with favor upon license amendments to the combined license filed shortly before planned operation that could have the effect of undermining standardization or changing the scope of imminent or pending hearings on conformance issues." 57 FR at 60976. NUMARC agrees that the "Sholly provisions should not * * * be used as a subterfuge for eliminating contested issues in a pending § 52.103 hearing on acceptance criteria performance," but fears that the Commission's "overly broad" language may discourage a licensee from applying for a license amendment to permit "a late-occurring minor noncompliance" with an acceptance criterion. NUMARC indicates that reworking the project to avoid the minor noncompliance may be undesirable "from both a cost and safety standpoint."

The Commission finds the language in the statement of considerations appropriate. It merely reiterates the Commission's longstanding commitment to standardization evident throughout the statement of considerations on the original part 52. See 54 FR 15372 (1989). The language does not disfavor all license amendments, only those that would undermine standardization or change the scope of pending hearings. A license amendment to deal with a "minor noncompliance" likely would not fall in those categories.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit,

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Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

Dated at Rockville, Maryland, this 22d day of December 1993.

For the Nuclear Regulatory Commission.
Samuel J. Chilk,
Secretary of the Commission.

59 FR 29965
Published 6/10/94
Comment period expires 7/11/94

10 CFR Part 52
RIN 3150-AE 42

Combined Licenses; Conforming Amendments; Supplementary Post-Promulgation Comment Period

AGENCY: Nuclear Regulatory Commission.
ACTION: Final rule: Supplementary post-promulgation comment period.

SUMMARY: The Nuclear Regulatory Commission (Commission) is providing a supplementary post-promulgation comment opportunity on a portion of its final rule amending its regulations to conform to the provisions of Title XXVIII of Public Law 102-486, the "Energy Policy Act of 1992," signed into law on October 24, 1992. This notice is necessary to inform the public of the comment opportunity.

DATES: The final rule became effective January 22, 1993. Comments are due 30 days after the date of publication of this notice.

FOR FURTHER INFORMATION CONTACT: Grace H. Kim, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-504-3605.

SUPPLEMENTARY INFORMATION:
Background

In 1992 Congress passed, and the President signed, the Energy Policy Act of 1992 (Pub. L. 102-486, 106 Stat. 2776). Title XXVIII of that Act amended in part the nuclear power plant licensing provisions of the Atomic Energy Act to authorize explicitly the issuance of combined construction and operating licenses for nuclear power plants. The new legislation largely

codified the Commission's existing regulations in 10 CFR part 52 with respect to such combined licenses, but also made several changes to the licensing process established under those regulations. On December 23, 1992, the Commission issued a final rule amending part 52 in light of the new legislation (57 FR 60975). Finding prior public comment on the part 52 amendments unnecessary because the changes were limited to incorporating the language of the Energy Policy Act into the regulations, the Commission established a 60-day post-promulgation comment period. *Id.*

On February 18, 1993, the Nuclear Information and Resource Service (NIRS), which did not submit post-promulgation comments,¹ petitioned the United States Court of Appeals for the District of Columbia Circuit for review of the Commission's final rule. DC Circuit No. 93-1164. Recently, however, the NIRS voluntarily requested dismissal of its petition for review (which the court granted) after obtaining the Commission's agreement, in the interest of judicial economy, to provide the NIRS another opportunity for post-promulgation comment on the final rule's treatment of the so-called "Sholly" procedure applicable to combined licenses. The "Sholly" procedure, which the Commission made applicable to combined licenses in the final rule in accordance with the Energy Policy Act (see 57 FR at 60976; 10 CFR 52.97(b)(2)(ii)), allows the Commission to make an amendment to a combined license immediately effective (*i.e.*, prior to a hearing) if it makes a finding that there are no significant hazards considerations.

In light of these specific circumstances, the Commission is providing another opportunity for post-promulgation comment. Any interested member of the public may submit comments on the Commission's treatment of the "Sholly" procedure in the final rule (see *id.*) within 30 days of the date of publication of this notice. Pursuant to 10 CFR 2.804(f), the Commission will publish in the *Federal Register* an evaluation of the significant comments and any revisions of the rule made as a result of the comments and their evaluation.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting,

¹ The only post-promulgation comment that the Commission received was submitted on February 22, 1993 by the Nuclear Management and Resources Council. The Commission responded to this comment in a *Federal Register* notice published on December 30, 1993 (58 FR 69220).

Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

Dated at Rockville, Maryland this 6th day of June, 1994.

For the Nuclear Regulatory Commission.
John C. Hoyle,
Acting Secretary of the Commission.

60 FR 4877
Published 1/25/95

10 CFR Part 52
RIN 3150-AE 42

Combined Licenses; Conforming Amendments; Post-Promulgation Comment

AGENCY: Nuclear Regulatory Commission.
ACTION: Final rule; comment response.

SUMMARY: The Nuclear Regulatory Commission (Commission) is addressing the one comment that it received in response to a supplementary post-promulgation comment opportunity on a portion of its final rule amending its regulations to conform to the provisions of Title XXVIII of Public Law 102-486, the "Energy Policy Act of 1992," signed into law on October 24, 1992. This notice is necessary to inform the public of the Commission's response to that post-promulgation comment.

DATES: The final rule became effective January 22, 1993. Comments to the supplementary comment opportunity were due by July 11, 1994.

FOR FURTHER INFORMATION CONTACT: Grace H. Kim, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-415-3605.

SUPPLEMENTARY INFORMATION:
Background

By *Federal Register* notice published on June 10, 1994 (59 FR 29965), the Commission offered a supplementary 30-day opportunity for "post-promulgation" comment on a portion of the final rule revising 10 CFR part 52 in light of Title XXVIII of the Energy Policy

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Act of 1992 (Pub. L. 102-486, 106 Stat. 2776), which amended the Atomic Energy Act to authorize explicitly the issuance of combined construction and operating licenses for nuclear power plants.¹ As the Commission explained in its *Federal Register* notice, this supplementary comment opportunity, limited to the so-called "Sholly" portion of the final part 52 rule,² was provided by the Commission in conjunction with an agreement for the voluntary withdrawal of a petition for review of the final part 52 rule that had been filed by the Nuclear Information and Resource Service in the Court of Appeals for the District of Columbia Circuit. See *id.* The Commission received only one comment in response, which was submitted on July 8, 1994 by the Nuclear Energy Institute (NEI) (the successor organization to NUMARC). In its submittal NEI essentially mirrors NUMARC's previous comments with respect to the "Sholly" provisions of the final rule, expressing its support for the Commission's amendment of 10 CFR 52.97 to make the "Sholly" procedure applicable to combined licenses and reiterating NUMARC's earlier request that the Commission modify certain language in the final rule's statement of considerations to clarify the Commission's intent regarding the implementation of § 52.97. See 58 FR at 69220, 69221. Because NEI merely reiterates NUMARC's comments, which have already been fully considered and addressed by the Commission (*id.*), no further response is necessary.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor

siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

Dated at Rockville, Maryland this 19th day of January, 1995.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Acting Secretary of the Commission.

61 FR 9901

Published 3/12/96

Effective 3/12/96

Minor Correcting Amendments

See Part 19 Statements of Consideration

61 FR 65157

Published 12/11/96

Effective 1/10/97

Reactor Site Criteria Including Seismic and Earthquake Engineering Criteria for Nuclear Power Plants

See Part 100 Statements of Consideration

¹ As required by 10 CFR 2.804(f), the Commission had also invited post-promulgation comment at the time it promulgated the final part 52 rule. See 57 FR 60975 (December 30, 1992). In response to this comment opportunity, the Commission received comments only from the Nuclear Management and Resources Council (NUMARC). The Commission responded to this comment in a *Federal Register* notice published on December 30, 1993 (58 FR 69220).

² The "Sholly" procedure, which the Commission made applicable to combined licenses in the final rule in accordance with the Energy Policy Act (see 57 FR at 60976; 10 CFR 52.97(b)(2)(ii)), allows the Commission to make an amendment to a combined license immediately effective (*i.e.*, prior to a hearing if it makes a finding that there are no significant hazards considerations).

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART
53

**CRITERIA AND PROCEDURES FOR DETERMINING THE ADEQUACY
OF AVAILABLE SPENT NUCLEAR FUEL STORAGE CAPACITY**

STATEMENTS OF CONSIDERATION

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes

See Part 1 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for
Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

61 FR 35935
Published 7/9/96
Effective 8/8/96

10 CFR Part 53
RIN 3150-AF47

**Removal of 10 CFR Part 53—Criteria
and Procedures for Determining the
Adequacy of Available Spent Nuclear
Fuel Storage Capacity**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to remove provisions concerning the "Criteria and Procedures for Determining the Adequacy of Available Spent Nuclear Fuel Storage Capacity" from the Code of Federal Regulations. This Part of the Commission's regulations is no longer applicable because the statutory timeframe for its implementation has expired.

DATE: This final rule is effective on August 8, 1996.

FOR FURTHER INFORMATION CONTACT: Gordon Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6195.

SUPPLEMENTARY INFORMATION:

Background

10 CFR Part 53 established procedures for nuclear power plant owners to follow for obtaining a determination from the NRC that the plant can not provide adequate spent nuclear fuel storage capacity. The regulations in this part established procedures and criteria for making the determination required by section 135(b) of the Nuclear Waste Policy Act of 1982 (96 Stat. 2201 and 2233) that an owner or operator of a civilian nuclear power reactor could not reasonably provide adequate spent nuclear fuel storage capacity at the reactor site, or at any other reactor it operates, when needed to ensure the continued orderly operation of the reactor. These regulations also required that the owner or operator diligently pursue licensed alternatives to the use of Federal storage capacity for the storage of spent nuclear fuel expected to be generated in the future.

Civilian nuclear power reactor operators who wanted the Commission to make a determination under 10 CFR

Part 53 had to file a request by June 30, 1989. The Commission was to process the request and make a determination before January 1, 1990. Section 53.11(b) placed a time limitation of June 30, 1989 (with an outside date of January 1, 1990 for special circumstances), on the filing of requests for a Commission determination on the adequacy of available spent fuel storage capacity. This was based on the January 1, 1990, limitation in Section 136(a) of the Nuclear Waste Policy Act on the ability of Department of Energy to enter into contracts for the interim storage of spent fuel based on a Commission determination. These dates have long passed and this Part of the Commission's regulations is no longer applicable because the statutory timeframe for its implementation has expired.

The storage of spent nuclear fuel at NRC licensed nuclear power plants is not affected by removing 10 CFR Part 53 because 10 CFR Part 50 provides the regulatory basis for licensing both wet and dry modes of spent fuel storage at nuclear power reactors. 10 CFR Part 72 provides the regulatory basis for licensing spent nuclear fuel storage in Independent Spent Fuel Storage Installations or Monitored Retrievable Storage Installations. These regulations are not affected by the removal of 10 CFR Part 53.

In accordance with 10 CFR 2.804(d)(2) of the Commission's regulations, the Commission is issuing a final rule withdrawing 10 CFR Part 53, rather than using the normal notice and comment process for agency rulemakings. In this case, the Commission finds that there is good cause to dispense with notice and public comment as unnecessary. As noted above, the statutory time period within which Federal interim storage under this rule could be implemented has long passed, and the Commission has no discretion to entertain any

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requests for Federal interim storage under this rule. Furthermore, little interest has been shown in the interim storage procedures in 10 CFR Part 53, and the Commission received no requests for interim storage since its promulgation in 1985. Under these circumstances, the Commission believes that public comment is unnecessary. The action will become effective on August 8, 1996.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements, which are being discontinued, were approved by the Office of Management and Budget, approval number 3150-0126.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Analysis

A regulatory analysis has not been prepared for this final rule because this final rule is considered a minor, non-substantive amendment and has no economic impact on NRC licensees or the public.

Small Business Regulatory Enforcement Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109 does not apply to this final rule because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1). Therefore, a backfit analysis is not required for this final rule.

List of Subjects in 10 CFR Part 53

Administrative practice and procedure, High-level waste, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Spent fuel, Waste treatment and disposal.

PART 53--[REMOVED]

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954 (42 U.S.C. 2201), as amended; the Energy Reorganization Act of 1974 (42 U.S.C. 5841), as amended; and 5 U.S.C. 552 and 553; the NRC is removing 10 CFR Part 53.

Dated at Rockville, Maryland, this 25th day of June 1996.

For the Nuclear Regulatory Commission.

James M. Taylor,

Executive Director for Operations.

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS — ENERGY

**PART
54**

**REQUIREMENTS FOR RENEWAL OF OPERATING LICENSES FOR
NUCLEAR POWER PLANTS**

STATEMENTS OF CONSIDERATION

56 FR 64943
Published 12/13/91
Effective 1/13/92

10 CFR Parts 2, 50, 54, and 140

RIN 3150-AD04

Nuclear Power Plant License Renewal

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is issuing a final rule that establishes the requirements that an applicant for renewal of a nuclear power plant operating license must meet, the information that must be submitted to the NRC for review so that the agency can determine whether those requirements have in fact been met, and the application procedures. This rule is necessary to provide the regulatory requirements for extending nuclear power plant operating licenses beyond 40 years.

EFFECTIVE DATE: January 13, 1992.

FOR FURTHER INFORMATION CONTACT: George Sege, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-3917; or Francis Akstulewicz, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-1136.

SUPPLEMENTARY INFORMATION:

- I. Introduction.
- II. Background.
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- IV. Principal Issues.
 - a. Regulatory Philosophy and Approach: Two Principles.
 - b. First Principle: Process for Ensuring Acceptability of Current Licensing Basis.
 - c. Current Licensing Basis.
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 - e. Aging Management and Integrated Plant Assessment.
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 - y. Compliance with 10 CFR Part 140.
- V. Availability of Documents.
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- VII. Paperwork Reduction Act Statement.
- VIII. Regulatory Analysis.
- IX. Regulatory Flexibility Act Certification.
- X. Non-Applicability of Backfit Rule.

I. Introduction

The Atomic Energy Act of 1954 (AEA) limits the duration of most operating licenses for nuclear power plants to a maximum of 40 years but permits their renewal. The Commission's regulations at 10 CFR 50.51 implement this authority by permitting renewal. However, § 50.51 provides no standards for procedures for renewal applications. The nuclear utility industry has expressed considerable interest in operating existing nuclear

power plants beyond their initial term of operation. The industry has undertaken several initiatives in support of plant life extension. A Steering Committee on Nuclear Plant Life Extension (NUPLEX) has been formed under the direction of the Nuclear Management and Resources Council (NUMARC). The Electric Power Research Institute (EPRI), in cooperation with the U.S. Department of Energy (DOE), and two utilities have sponsored research on life extension, including pilot studies on two nuclear plants, Surry-1 and Monticello. This has culminated in DOE funding of two lead applications for renewal of the operating licenses for the Yankee Rowe and Monticello Facilities.

The nuclear industry has urged the NRC to develop standards and procedures for license renewal so that the utilities would know what will be required to obtain a renewed operating license. The industry states that a license renewal rule is needed now because a significant number of plants will be making decisions in the near future as to whether to seek license renewal. For the oldest nuclear power plants, the expiration dates of their original operating licenses are approaching. Utilities contend that they will require 10 to 15 years to plan and build replacement power plants if the operating licenses for existing nuclear power plants are not renewed. They also contend that the NRC's technical requirements for license renewal must be established before utilities can reasonably determine whether renewal of their existing operating licenses is economically justified. (For more information on the expiration dates of facility operating licenses, see appendix A to the regulatory analysis for license renewal, NUREG-1362.) To ensure a reasoned process for considering license renewal for those who may pursue it, the NRC is establishing the procedures, criteria, and standards governing the requirements for renewal of nuclear power plant operating licenses.

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II. Background

The NRC's research program on the degradation of nuclear power plant systems, structures, and components (SSCs) due to aging began in the early 1980s. In 1982, the NRC staff, recognizing the potential impact of plant aging phenomena on the continued safe operation of nuclear power plants, convened a "Workshop on Plant Aging" in Bethesda, Maryland. The purpose of the workshop was to focus attention on how to best proceed to identify and resolve the various technical issues related to plant aging. In 1985, the Division of Engineering of the Office of Nuclear Regulatory Research issued the first comprehensive program plan (NUREG-1144) for Nuclear Plant Aging Research (NPAR). By 1986, the evaluation of age-related degradation in safety-related SSCs became a more important priority with the recognition that utilities were interested in extending the life of their existing power plants beyond the term of their original operating licenses. In response to the NPAR program plan, the NRC staff established a Technical Integration Review Group for the Aging and Life Extension (TIRGALEX). The objectives of TIRGALEX were to clearly define the technical, safety, and regulatory policy issues associated with plant aging and life extension and to develop a plan for resolving the issues in a timely, well-integrated manner. In May 1987, the NRC issued the TIRGALEX report, "Plan to Accomplish Technical Integration for Plant Aging/Life Extension." It identified a broad spectrum of technical, safety, and regulatory policy issues. These issues included identification of SSCs that are susceptible to aging and could adversely affect safety; degradation processes; testing, surveillance, and maintenance requirements; and criteria for evaluating residual life. TIRGALEX concluded that many aging phenomena are readily managed and do not pose major technical issues that would preclude life extension, provided that necessary compensatory measures such as maintenance, surveillance, repair, and replacement are effectively implemented during the extended period of operation.

Simultaneously, a request for comments on the establishment of a policy statement on life extension was published in the *Federal Register* (51 FR

40334; November 6, 1986). Comments were requested on seven major policy, technical, and procedural issues (21 separate questions). Two policy areas focused on the timing of regulatory action on life extension, including the need for a policy statement, and timing of resolution of policy, technical, and procedural issues. Other issues addressed included (1) the earliest and latest dates for filing a life extension application and the potential term of such an extension; (2) an appropriate licensing basis, including the need for and role of a probabilistic risk assessment (PRA); (3) the nature of aging degradation, its identification and mitigation, and the need for research and changes to industry codes and standards; and (4) the need for procedural changes in the Commission's regulations for handling life extension requests. A total of 58 written comments were received from the electric utility industry, public interest groups, private citizens, independent consultants, and government agencies. These comments were reviewed and a summary provided in SECY-87-179, "Status of Staff Activities to Develop a License Renewal Policy, Regulations and Licensing Guidance and to Report on Public Comments" (July 21, 1987).

Based on these comments, the staff began to specifically identify and resolve the wide variety of policy and technical issues relevant to life extension. In August 1988, the staff published an Advance Notice of Proposed Rulemaking (ANPR) in the *Federal Register* (53 FR 32919; August 29, 1988) in which the Commission announced its intention to bypass a policy statement and go directly to preparing a proposed rule on license renewal. The ANPR also announced the availability of NUREG-1317, "Regulatory Options for Nuclear Plant License Renewal," and requested comments on the issues discussed in the NUREG report. First, three alternative licensing bases for assessing the adequacy of a license renewal application were presented and discussed: (1) The existing licensing basis for a facility, (2) supplementation of the existing licensing basis with reviews in safety significant areas, or (3) compliance with new-plant standards at the time the application is submitted. Commenters were asked to identify whether any other major regulatory options for license renewal should be considered and whether verification of the existing licensing basis at each plant should be required for license renewal. Second, two alternatives for handling uncertainties in age-related degradation

were described and discussed: (1) Emphasize maintenance, inspection, and reliability assurance, or (2) emphasize defense-in-depth. The relative merit of the two alternatives was the second subject for comment. Third, the advisability of preparing a generic environmental impact statement (GEIS) and the question of whether part 51 should be amended to permit the NRC the option of preparing an environmental assessment (EA) instead of an environmental impact statement were discussed. Finally, 12 procedural and policy issues were discussed. Comments were invited on the environmental, procedural, and policy issues.

Fifty-three written comments were received for nuclear industry groups and individual utilities, public interest groups, and Federal State agencies in response to the ANPR and NUREG-1317. An overview and summary analysis of the comments are contained in NUREG/CR-5332, "Summary and Analysis of Public Comments on NUREG-1317: Regulatory Options for Nuclear Plant License Renewal" (March 1989).

Also in 1988, the NRC, in cooperation with the American Nuclear Society (ANS), the American Society of Civil Engineers (ASCE), the American Society of Mechanical Engineers (ASME), and the Institute of Electrical and Electronic Engineers (IEEE), sponsored an International Nuclear Power Plant Aging Symposium. The symposium, which was held in Bethesda, Maryland, from August 30 through September 1, 1988, was attended by more than 550 internationally prominent nuclear scientists and engineers from 16 countries. The symposium focused on the potential safety issues arising from progressive aging of nuclear power plants. These issues included aging of insulating materials, degradation of pumps and valves, reliability of safety system components, radiation and thermal embrittlement of metals, and erosion-corrosion of fluid-mechanical systems. The symposium discussion addressed topics in the staff's report NUREG-1317, which had been published immediately preceding the symposium. The proceedings of the symposium were published as NUREG/CP-0100 in March 1989.

The NRC staff's views on specific license renewal issues, as evolved in early 1989, were presented to the public in an NRC panel discussion and question and answer session at the NRC's Regulatory Information Conference, held on April 18, 19, and 20, 1989. Among the issues discussed were

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the nature of a renewed license (renewed license versus amendment of existing license), the need for a PRA, integration with the Individual Plant Examination (IPE) process, and compliance with the National Environmental Policy Act (NEPA).

On October 13, 1989 (54 FR 41980), the Commission announced that a workshop would be held on November 13 and 14, 1989, to focus on specific technical issues, including identification of the significant technical issues bearing on safety, the nature and content of standards for issuance of a renewed license, and the appropriate role and scope of deterministic and probabilistic risk assessments. In addition, the schedule for rulemaking and alternatives for addressing compliance with NEPA were identified as issues for discussion. General questions to focus workshop discussions were provided in the **Federal Register** notice and later supplemented by a more detailed set of questions. In addition, the **Federal Register** notice included a "Preliminary Regulatory Philosophy and Approach for License Renewal Regulation" and an "Outline of a Conceptual Approach to a License Renewal Rule." Written comments on the questions, the statement of regulatory philosophy, and the conceptual rule outline were accepted by the agency up to December 1, 1989. Transcripts were made of the entire workshop. Two hundred and one individuals (not including NRC staff) representing 89 organizations registered for the workshop. Comments provided during the workshop were from industry representatives and individuals affiliated with the nuclear industry. NUMARC, Yankee Atomic Electric Company, and Northern States Power Company presented prepared comments at each session. In addition, written comments were received from 12 organizations, including substantial submissions by NUMARC, Yankee Atomic, Northern States Power, Westinghouse, the Illinois Department of Nuclear Safety, and an independent consultant. DOE was the only Federal agency submitting written comments. No comments were submitted by any public interest group. The issues raised in these comments are discussed in NUREG-1411.

On July 17, 1990, the Commission issued for public comment the proposed rule for license renewal (55 FR 29043). Comments were also solicited on the following supporting documents that provided the basis for the rule: NUREG-1412, "Foundation for the Adequacy of the Licensing Bases"; NUREG-1398, "Environmental Assessment for

Proposed Rule on Nuclear Power Plant License Renewal"; and NUREG-1362, "Regulatory Analysis for Proposed Rule on Nuclear Power Plant License Renewal." A 90-day comment period was provided, which expired on October 15, 1990. Three requests for extension of the comment period were received. The Commission denied these requests (55 FR 34939, August 27, 1990) but reiterated its intention to consider comments received after the closing date if practical to do so. Comments received by December 31, 1990, were considered. In total, 197 comment letters were received, including 121 from organizations and 76 from private citizens.

Eighty-three separate responses were received from the nuclear industry. The most extensive comments were provided by NUMARC. In addition, four other industry organizations responded: Electric Power Research Institute, Nuclear Utility Group on Equipment Qualification, Nuclear Utility Backfitting and Reform Group, and Utility Decommissioning Group. Eighteen organizations representing vendors and manufacturers of nuclear-related equipment submitted comments, including Westinghouse Corporation and Asea Brown Boveri-Combustion Engineering Nuclear Power. In addition, two engineering firms responded. Thirty-five nuclear utility companies provided separate responses. Many of them did not provide detailed comments but simply endorsed the comments provided by NUMARC.

Three law firms submitted comments on behalf of utilities, nuclear industry groups, and other organizations. Spiegel and McDiarmid submitted comments on behalf of the American Public Power Association (APPA) and the National Rural Electric Cooperative Association and Power Systems. Winston and Strawn submitted five separate sets of comments. One set was on behalf of the Utility Decommissioning Group, one set was on behalf of the Nuclear Utility Backfitting and Reform Group (NUBARG), two were on behalf of nine utilities, and one was for seven utilities. Newman and Holtzinger submitted comments on behalf of 15 utilities.

Non-industry groups comprised 17 public interest groups, a publishing company (Nuclear Plant Journal), a business organization (U.S. Chamber of Commerce), a professional organization (American Nuclear Society), a law firm (Hopkins and Sutter), three Federal agencies, and nine State agencies. Some public interest groups submitted comments jointly with others (e.g., joint response by UCS and New England

Coalition on Nuclear Pollution; and NIRS and Greenpeace). Fifteen residents near the Yankee Rowe plant stated their opposition to renewal of that plant's operating license. Forty-six other individuals submitted letters supporting the proposed rule. The DOE provided comments generally in support of the rule. Two agencies from the State of Ohio responded: Ohio EPA and Emergency Management Agency. Included in the State agency classification is the Massachusetts State Senate Office of Senator John Olver who represents a district near the Yankee Rowe plant.

An analysis of the public comments and the Commission's response to these comments are documented in NUREG-1428, "Analysis of Public Comments on the Proposed Rule on Nuclear Power Plant License Renewal." The Commission's resolution of principal issues raised by the commenters is also incorporated in the pertinent sections of the Statement of Considerations for this rule.

Implementation guidance for 10 CFR part 54 was drafted on the basis of the proposed rule and issued as drafts for public comment on December 10, 1990. Two staff guidance documents were included: Draft Regulatory Guide DG-1009, "Standard Format and Content of Technical Information for Applications to Renew Nuclear Power Plant Operating Licenses," December 1990, and NUREG-1299, "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants," November 1990. The public comment period closed on March 8, 1991. These documents will be revised as a result of public comments, this final rule, and the experience gained during the review of the lead plant license renewal application.

The environmental impacts of individual nuclear power plant license renewals are the subject of a generic environmental impact statement (GEIS) and a separate rulemaking action that will propose changes to 10 CFR part 51. An Advance Notice of Proposed Rulemaking invited early public comments concerning this part 51 rulemaking (55 FR 29964; July 23, 1990). A Notice of Intent (NOI) to prepare a GEIS was simultaneously published with the notice of proposed rulemaking (55 FR 29967; July 23, 1990). The proposed revisions to part 51 and the supporting documents were published for public review and comment on September 17, 1991 (56 FR 47016). The comment period for this action expires December 16, 1991.

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III. Final Action

The Atomic Energy Act, which permits renewal of licenses, and the Commission's current provision governing license renewal, 10 CFR 50.51, do not contain specific procedures, criteria, and standards that must be satisfied in order to renew a license. This final rule, 10 CFR part 54, establishes the procedures, criteria, and standards governing nuclear power plant license renewal.

The most fundamental issue in this rulemaking is what standards and scope of review should apply to license renewal decisions. The Commission's approach to and resolution of these issues are discussed in detail in section IV. In brief:

(1) It is not necessary for the Commission to review each renewal application against standards and criteria that apply to newer plants or future plants in order to ensure that operation during the period of extended operation is not inimical to the public health and safety. Since initial licensing, each operating plant has continually been inspected and reviewed as a result of new information gained from operating experience. Ongoing regulatory processes provide reasonable assurance that, as new issues and concerns arise, measures needed to ensure that operation is not inimical to the public health and safety and common defense and security are "backfitted" onto the plants. The Commission cannot conclude that its regulation of operating reactors is "perfect" and cannot be improved, that all safety issues applicable to all plants have been resolved, or that all plants have been and at all times in the future will operate in perfect compliance with all NRC requirements. However, based upon its review of the regulatory programs in this rulemaking, the Commission does conclude that (a) its program of oversight is sufficiently broad and rigorous to establish that the added discipline of a formal license renewal review against the full range of current safety requirements would not add significantly to safety, and (b) such a review is not needed to ensure that continued operation during the period of extended operation is not inimical to the public health and safety.

The regulatory process also reviews the ownership and operation of the facility to ensure that the operation of nuclear power plants will not be inimical to the common defense and security. Accordingly, the Commission concludes that a formal license renewal review against applicable common

defense and security requirements is not needed to ensure that continued operation during the period of extended operation is not inimical to the common defense and security.

(2) The Commission's ongoing processes have not, quite logically, addressed safety questions which, by their nature, become important principally during the period of extended operation beyond the initial 40-year license term. By their nature, these questions have limited relevance to safety under the initial operating licenses. This leads the Commission to conclude, as explained in greater detail in section IV, that age-related degradation of plant systems, structures, and components that is unique for the extended period of operation must be elevated before a renewed license is issued. This is a new safety issue that has not been treated in a comprehensive fashion in the Commission's ongoing oversight of operating reactors. However, age-related degradation will be critical to safety during the term of the renewed license. The Commission believes that the discipline of a formal integrated plant assessment of age-related degradation unique to license renewal is necessary. The Commission recognizes that, as it gains more experience with age-related degradation review, it may revisit the need for such a disciplined review process and potentially narrow the scope of the safety review. But for now, the Commission concludes that a formal review of age-related degradation unique to license renewal is needed at license renewal to ensure that operation during the period of extended operation will not be inimical to the public health and safety.

(3) Age-related degradation is the result of physical processes and a natural consequence of plant operation. Many plant SSCs have been designed for a 40-year life. The design of these SSCs has accounted for age-related factors such as fatigue, corrosion, and other effects of the environment to which the SSCs are exposed during at least this 40-year period. However, since license renewal will result in operation of these SSCs beyond the 40 years assumed in their design, additional analyses and/or actions may be necessary to ensure that an acceptable level of safety is maintained during the period of extended operation. For individual plants, there may be other safety issues that may arise in connection with renewal that, by their nature, are not relevant to safety during the initial operating license term. These

kinds of issues would, by their nature, not be addressed in ongoing processes intended to provide adequate protection during the initial term of operation but, because of their plant-specific nature, must be addressed in renewals case by case.

(4) The licensing basis for a nuclear power plant during the renewal term will consist of the current licensing basis and new commitments to monitor, manage, and correct age-related degradation unique to license renewal, as appropriate. The current licensing basis includes all applicable NRC requirements and licensee commitments, as defined in the rule.

(5) An opportunity for a formal public hearing is provided to permit interested persons to raise contentions on the adequacy of the renewal applicant's proposals to address age-related degradation unique to license renewal and compliance with applicable requirements of 10 CFR part 51. Section 2.758 of 10 CFR part 2 is amended to specify the circumstances under which the 10 CFR part 54 rule may be challenged in such a hearing.

(6) A renewal application may be made not more than 20 years before license expiration. It must be made not less than 5 years before license expiration for the timely renewal provision of 10 CFR 2.109 to apply.

(7) A renewal license is effective upon its issuance and supersedes the existing operating license.

(8) A renewal license may be granted for a term as justified by the licensee, but not for more than 20 years beyond the existing license expiration.

IV. Principal Issues

a. Regulatory Philosophy and Approach: Two Principles

There is considerable logic to the proposition that issues that are material as to whether a nuclear power plant operating license may be renewed should be confined to those issues that are uniquely relevant to protecting the public health and safety and common defense and security during the renewal period. Other issues would, by definition, have a relevance to the safety and security of current plant operation. Given the Commission's ongoing obligation to oversee the safety and security of operating reactors, issues that are relevant to both current plant operation and operation during the extended period must be addressed now within the present license term rather than at the time of renewal. Otherwise, the scope of Commission inquiry into the safety and security during the

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current term of operation would depend on the unrelated decision of a licensee to seek license renewal and the timing of the Commission's renewal decision. In some cases, safety or security may be endangered if the resolution of a safety or security matter relevant to both ongoing and extended operation were postponed until the final renewal decision (which itself may occur several years after filing of the renewal application). While in theory the Commission could undertake duplicative reviews of issues that are relevant to both ongoing operation during the current license term and extended operation beyond the current term, this would be wasteful of the Commission's resources. As part of this rulemaking, the Commission has carefully considered the desirability of renewal reviews that would duplicate the Commission's ongoing review of operating reactors. This consideration has nonetheless led the Commission to formulate the following two principles.

The first principle is that, with the exception of age-related degradation unique to license renewal and possibly some few other issues related to safety only during extended operation, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety for operation so that operation will not be inimical to public health and safety or common defense and security. Continuing this regulatory process in the future will ensure that this principle remains valid during any renewal term if the regulatory process is modified to include age-related degradation unique to license renewal. Moreover, consideration of the range of issues relevant only to extended operation has led the Commission to conclude that there is likely only one real issue generally applicable to all plants—age-related degradation. The renewal rule focuses the Commission's review on this one safety issue but provides leeway for the Commission to consider, on a case-by-case basis, other issues unique to extended operation.

The second and equally important principle is that each plant's current licensing basis must be maintained during the renewal term, in part through a program of age-related degradation management for systems, structures, and components that are important to license renewal as defined in the final rule.

b. First Principle: Process for Ensuring Acceptability of Current Licensing Basis

(i) General

When the Commission issued the initial operating license under 10 CFR 50.57, it concluded that the facility had been completed and would be operated in accordance with the operating license application, the rules and regulations of the Commission, and the provisions of the Atomic Energy Act (AEA). Further, the Commission concluded that the authorized activities could be conducted without undue risk to the health and safety of the public and the common defense and security, the applicant was technically qualified, the applicable provisions of 10 CFR part 140 had been met, and the issuance of an operating license would not be inimical to the common defense and security or to the health and safety of the public. Thus, when the Commission issued the initial operating license, it made a comprehensive determination that the design, construction, and proposed operation of the facility satisfied the Commission's requirements and provided reasonable assurance of adequate protection to the public health and safety and common defense and security.

However, the licensing basis upon which the Commission determined at the issuance of the initial operating license that an acceptable level of safety existed, and that the common defense and security was provided, does not remain fixed for the term of the operating license. The licensing basis evolves throughout the term of the operating license because of the continuing regulatory activities of the Commission, as well as the activities of the licensee. As discussed in sections IV.b. (ii) through (vi) and IV.c, the Commission engages in a large number of regulatory activities which, when considered together, constitute a regulatory process that provides ongoing assurance that the licensing bases of nuclear power plants provide an acceptable level of safety. This process includes research, inspections, audits, investigations, evaluations of operating experience, and regulatory actions to resolve identified issues. The Commission's activities may result in changes to the licensing bases for nuclear power plants through the promulgation of new or revised regulations, acceptance of licensee commitments for the modification to nuclear power plant designs and procedures, and the issuance of orders or confirmatory action letters or confirmation that there is no need to change the licensing basis. In this way,

the Commission's consideration of new information provides ongoing assurance that the licensing bases for all nuclear power plants provide an acceptable level of safety. The process will continue through the term of a renewed license. Similarly, the Commission considers new information on whether the nuclear power plants continue to provide for the common defense and security, such as changes in ownership or proposals to use highly enriched fuel. These processes will also continue throughout the term of the renewed license.

In addition to Commission-required changes in the licensing bases, a licensee may also seek changes to the current licensing basis for its plant. However, as a commenter indicated, these changes are subject to the Commission's formal regulatory controls with respect to the changes, including 10 CFR 50.59, 50.90, 50.91, and 50.92. Under § 50.59, a licensee may make changes to its facility without prior Commission approval if certain conditions are met; documentation of these changes must be maintained for specified periods of time. This regulation also requires a licensee to annually submit to the Commission a description of the changes made to the facility without prior NRC approval. A licensee may also request Commission approval to change its licensing basis or facility if the conditions stated in § 50.59 cannot be met, using the license amendment process described in §§ 50.90 and 50.92. These regulatory controls ensure that a documented basis for licensee-initiated changes in the licensing basis for a plant exists and that Commission review and approval is obtained prior to implementation if changes to the licensing basis raise unreviewed safety questions or involve changes to the technical specifications. The final safety analysis report is periodically updated to reflect such changes.

In sum, the Commission's regulatory processes provide reasonable assurance that the discipline of a formal license renewal review against either the full range of current safety requirements or the requirements on common defense and security would not add significantly to safety or common defense and security and is not needed to ensure that continued operation during the renewal term is not inimical to the public health and safety or the common defense and security.

(ii) Review of Operating Events

The Commission has a program for the review of operating events at nuclear power plants. As a requirement of the current licensing basis, and one

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that would continue during the renewal term, each licensee is required to notify the Commission promptly of any plant event that meets or exceeds the threshold defined in 10 CFR 50.72 and to file a written licensee event report for those events that meet or exceed the threshold defined in 10 CFR 50.73. The NRC reviews this information daily and follow-up efforts are carried out for events that appear to be potentially risk significant or are judged to be a possible precursor to a more severe event. Depending on the significance, further action may be taken to notify all licensees or to impose additional requirements. The NRC receives information on operating events from licensees in the form of licensee event reports and disseminates information that may be relevant to safety, safeguards, or environmental issues in the form of information notices. The NRC also transmits information to and requests action by licensees through bulletins and other reports such as generic letters. These documents typically require a written response from licensees concerning actions taken or to be taken over a period of time to address matters of safety, safeguards, or environmental significance. If a licensee's action does not adequately address items described in a bulletin, the staff may consider issuing an order to impose the specific requirement. The total program offers a high degree of assurance that events that are potentially risk significant or precursors to potentially significant events are being reviewed and resolved expeditiously.

(iii) Generic Safety Issues

As described in SECY-89-138, the Commission also maintains an active program for evaluating and resolving generic safety issues that may impact public health and safety. A generic safety issue (GSI) involves a safety concern that may affect the design, construction, or operation of all, several, or a class of reactors or facilities. Its resolution may have a potential for safety improvements and promulgation of new or revised requirements or guidance. The prioritization process, as described in NUREG-0933, evaluates the safety significance of an issue and classifies the issues as high, medium, or low priority GSIs. GSIs that are categorized as high priority are further evaluated to determine whether they involve questions regarding adequate protection of the public health and safety and therefore should be re-categorized as unresolved safety issues (USIs). GSIs are issues that involve

enhancements to safety but do not call into question the adequacy of the current licensing basis. By contrast, USIs are defined as issues that potentially involve adequate protection of the public health and safety. Thus, a USI may represent a matter where the adequacy of the current licensing basis has not been established. Resolution of a USI may result in a determination that action is necessary to ensure adequate protection, or it may result in a conclusion that, in fact, there are no concerns as to adequate protection of the public health and safety and further action is not warranted. The licensing basis of individual plants includes changes that have resulted from resolution of generic issues determined to be applicable and will include applicable generic-issue-derived changes in the future.

A special group of 22 GSIs deemed to be of sufficient significance to warrant both a high-priority resolution effort and special attention in tracking were designated as USIs. All USIs have been resolved. Most of the USI resolutions have been implemented; the remainder are being implemented on a satisfactory schedule. In one case, USI A-46, "Seismic Qualification of Equipment in the Operating Plants," the NRC and the utility groups are negotiating the implementation schedule in accordance with the NRC policy on integrated schedule for plant modifications, Generic Letter 83-20, dated May 9, 1983. This process for ensuring implementation of these remaining USIs is the same process used by the NRC in the past to ensure resolution and implementation of USIs. Furthermore, this process will be used in the future if the NRC identifies new issues that meet the definition of a USI.

The GSI resolution process, including USIs, is limited to issues that are not of such gravity that immediate action (remedy or shutdown) is required. Several comments were received suggesting that the implementation of all resolved USIs and GSIs should be a prerequisite to license renewal. The Commission disagrees. The Commission believes that it has used, and will continue to use, a regulatory process that ensures that issues constituting USIs will be identified, resolved, and implemented with no undue risk to the public health and safety or common defense and security. This process has proved effective in the past and will continue to be used in the future.

Cost-benefit analyses were employed as part of the basis of resolving GSIs involving safety enhancement above the adequate safety level. In these tradeoffs

between net safety benefit and net cost, the remaining plant operating term ordinarily enters the calculations. Both the safety value and the cost impact can increase with added plant operating time. The safety value could increase over time more than the cost impact, as would be the case when costs are largely one-time initial costs but the risk reduction benefit accumulates year after year with continued operation. As part of its efforts toward developing the license renewal rule, the Commission examined the resolved GSIs for possible cases in which consideration of the additional operating time during the renewal term might have altered the regulatory decision. Since the cases in which cost-benefit tradeoffs entered the decision involved only safety enhancement issues and not issues of adequate safety, examination of the effect of the renewal term was not compelled by adequate safety considerations. Rather, the Commission undertook the examination as a matter of prudence to determine if there was a possible safety enhancement during the renewal term. The examination covered cases that have the following characteristics:

- (1) Backfitting of a new requirement within the original license term was judged not to be worthwhile.
- (2) Addition of a renewal term could increase the safety value without commensurate increase in cost impact.
- (3) The extent and other circumstances of the effect of license renewal on values and impacts are such as to suggest the possibility that with a 20-year increase in operating time backfitting deserved consideration. In addition to operating time, projected population increases near the plant sites were taken into account.

Of the 249 GSIs that were resolved through October 1990, 139 did not result in backfit requirements. (GSI resolution efforts started or in progress after October 1990 examine renewal-term effects as part of the original issue resolution process.) A screening of these 139 GSIs led to the identification of three issues for which a reexamination of the backfit determination for the license renewal period appeared prudent. In two instances, the reexamination led to confirmation of the appropriateness of the no-backfit decision for an additional 20 years of operation beyond an original 40-year license term. A third issue had been placed in the resolution process for reconsideration aside from license renewal and is currently under reevaluation. All of the issues identified for reexamination are issues of potentially worthwhile safety enhancements; none involve adequate

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protection concerns. (A more detailed discussion of this reexamination appears in NUREG-1412. Details of the screening are reported in NUREG/CR-5382, "Screening of Generic Safety Issues for License Renewal Consideration," NRC, June 1991.)

(iv) Systematic Evaluation Program

In 1977, the NRC initiated the Systematic Evaluation Program (SEP) to review the designs of 10 of the oldest operating nuclear power plants and thereby confirm and document their safety. The reviews were organized into approximately 90 review topics (reduced by consolidations from 137 originally identified).

The SEP effort highlighted a group of 27 regulatory topics for which corrective action was generally found to be necessary for the initial SEP plants and for which safety improvements for other operating plants of the same vintage could be expected. The topics on this smaller list are referred to as the SEP lessons learned, and the Commission expects that these topics would be generally applicable to operating plants that received their construction permits in the late 1960s or early 1970s.

Four of the 27 regulatory topics highlighted in the SEP effort have been completely resolved and one is of such low safety significance as to require no regulatory action. The Commission has determined that none of the 22 issues remaining open requires immediate action to protect the public health and safety. The Commission has incorporated the 22 issues into the established regulatory process for determining the safety importance of GSIs. Further, attention as part of a license renewal application is not required. As with the case for GSIs and USIs, the existing prioritization process that is being used during the review and prioritization of the SEP lessons learned issues should prove to be adequate in the future to resolve these issues.

(v) Severe Accident Policy

The regulatory philosophy containing the two fundamental principles is also consistent with the Commission's policy statement entitled "Severe Reactor Accidents Regarding Future Designs and Existing Plants" (50 FR 23138; August 8, 1985). In this policy statement, the Commission concluded that existing plants pose no undue risk to public health and safety. Moreover, the Commission stated that it has ongoing nuclear safety programs, described in NUREG-1070, that include the resolution of unresolved safety issues and generic safety issues, the Severe Accident

Research Program, operating experience and data evaluation concerning equipment failures and human error, and review by NRC inspectors to monitor the quality of plant construction, operation, and maintenance. If new safety information were to become available, from any source, to question the Commission's conclusion of no undue risk, then any technical issues so identified would be resolved by the NRC under its backfit policy and other existing procedures, including the possibility of generic rulemaking.

(vi) Probabilistic Risk Assessment

Although a plant-specific probabilistic risk assessment (PRA) will not be a requirement for the renewal of plant operating licenses, the Commission recognizes that a plant-specific PRA can be used as an effective tool to provide integrated insights into the plant design, resulting in an additional relative measure of overall plant safety. While the Commission believes that the methodology for conducting an integrated plant assessment needed to ensure that aging of SSCs is appropriately managed should emphasize deterministic approaches, the Commission also acknowledges that PRA techniques could be used as a supplemental tool in the renewal applicant's integrated plant assessment. The Commission recognizes that PRA can be an effective tool to provide added assurance that all SSCs important to license renewal have been evaluated, as further discussed in section IV.e.

The Commission received a number of comments concerning the use of PRA or severe accident management studies for license renewal. The industry commented that completion of the individual plant examination (IPE) and individual plant examination for external events (IPEEE) programs for severe accident management using PRA-type analysis should not be a prerequisite to license renewal. Current severe accident programs, namely the IPE and IPEEE programs, although important to the Commission, are considered safety enhancements and, as such, their completion will not be a requirement for license renewal. For many licensees, the IPE and IPEEE programs may be completed before a license renewal application is submitted.

c. Current Licensing Basis

(i) Current Licensing Basis Explained

As defined in § 54.3 of the rule, the current licensing basis (CLB) is the set of NRC requirements applicable to a

specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. The CLB includes the NRC regulations contained in 10 CFR parts 2, 19, 20, 21, 30, 40, 50, 51, 54, 55, 70, 72, 73, and 100 and appendices thereto; orders, license conditions; exemptions; and technical specifications. It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent final safety analysis report (FSAR) as required by § 50.71(e). In addition, the CLB includes the licensee's written commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, licensee commitments documented in NRC safety evaluations, or as described in licensee event reports.

The CLB generally undergoes adjustment from time to time in the light of new information that develops during the plant's operating life. The Atomic Energy Act directs the Commission to ensure that nuclear power plant operation is not inimical to the health and safety of the public. However, this standard is not absolute protection or zero risk, and therefore safety improvements beyond the minimum needed to meet this standard are possible. As new information is developed on technical subjects, the NRC identifies potential hazards and then may require that plants be able to cope with such hazards with sufficient safety margins and reliable systems. If this new information reveals an unreviewed safety question, the Commission may, in light of the information, conclude that assurance of an acceptable level of safety requires changes in the existing regulations. Therefore, as the Commission identifies new issues or concerns, reasoned engineering decisions occur within the Commission concerning whether any additional measures must be taken at plants to resolve the issues. When specific actions are identified, the Commission, through its regulatory programs, can modify the licensing bases at operating plants at any time to resolve the new concern. This process of determinations concerning backfitting of evolving requirements to plants already licensed is guided by the provisions of the backfit rule (10 CFR 50.109). Before promulgation of the current backfit rule, similar considerations were applied,

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though the backfit rule enhanced the discipline of the process.

In view of the regulatory programs and process just described, it is evident that the licensing basis differs among plants. These differences arise from differences in license date as well as differences in such factors as site, plant design, and plant operating experience. The paragraphs above have described, in general terms, the process employed by the Commission to provide continued assurance that the licensing basis at an operating plant provides an acceptable level of safety at any point in time during its operating life and that the current licensing bases of older plants remain acceptable through backfit of new requirements and guidance when that is necessary for adequate safety or warranted as worthwhile safety enhancements.

A large number of public comments expressed concern that the proposed definition of CLB restricted the CLB to the specific information on the docket at the time of the filing of a license renewal application. As such, the proposed CLB definition suggested that neither a licensee nor the staff could make changes to the existing 10 CFR part 50 license while the 10 CFR part 54 renewal application was under review. In the final rule, the Commission has revised the definition of the CLB by removing the phrasing that limited the CLB to that defined at the time of submittal of the renewal application. The Commission has also revised the rule (§ 54.21(e)) to include the requirement for licensees to provide periodic updates of the renewal application to reflect changes to the CLB. These updates should contain a determination whether any such changes would modify the renewal application.

Some commenters also raised a concern that the proposed CLB definition is too vague and too broad. In particular, commenters noted that the words "but are not limited to" are so broad as to render the definition meaningless, and the proposed definition did not specify that only written commitments should be included in the CLB. In response to these comments, the Commission has revised the CLB definition to restrict commitments to those that are written and on the plant-specific docket. The Commission has removed the ambiguous phrasing and has enhanced the definition to include written commitments as documented in the NRC safety evaluation reports.

The Commission has also added 10 CFR part 51 to the definition of the CLB. Inclusion of 10 CFR part 51, which

contains environmental protection regulations, is necessary to continue the current licensing bases for a plant licensed under 10 CFR part 50.

(ii) Regulatory Processes Underlying Current Licensing Bases

In support of the proposed license renewal rule, the Commission proposed to make a generic finding that the reasonable assurance of adequate protection findings for the issuance of an operating license continued to be true at the time of application for license renewal. Therefore, they need not be made anew at the time a renewed license is granted. As part of the final license renewal rule, the Commission no longer considers it appropriate to codify such a ruling in the regulations. The final license renewal rule reflects and documents the Commission's belief that, with the exception of age-related degradation unique to license renewal, current regulatory processes are sufficiently broad and rigorous and that these processes generally provide reasonable assurance that extended operation of existing plants would not endanger the public health and safety and would not be inimical to the common defense and security. This belief leads the Commission to find in this rulemaking that the discipline of a relicensing review process, except in the area of age-related degradation unique to license renewal, is not necessary to ensure that operation is not inimical to the public health and safety or common defense and security during the period of extended operation. NUREG-1412, "Foundation for the Adequacy of the Licensing Bases," describes how the licensing process has evolved in major safety issue areas under process that have ensured continued adequacy of all operating plants. NUREG-1412 provides historical illustrations of how the process has addressed potential safety issues and new information over the course of time. As such, it provides additional support for the Commission's determination that it is unnecessary to review an operating plant's licensing basis, except for age-related degradation concerns unique to license renewal, at the time of license renewal. NUREG-1412 does this in generic terms. NUREG-1412 also illustrates how the regulatory process has provided and will continue to provide assurance that an operating reactor's licensing basis will continue to provide an acceptable level of safety during any renewal term.

Commenters argued that the CLB of a number of plants is inadequate. Multiple examples of operational concerns and issues at specific plants were identified to demonstrate the inadequacy of the

CLBs. In particular, existing NRC documents were referenced by a commenter to list operational concerns with power oscillations in BWRs, motor-operated valve testing, potential accidents when shut down, questions on the allowed cyclic lifetime of components, potential hydrogen combustion/explosion, and flooding caused by floor drains. Grandfather clauses in existing regulations and exemptions granted to regulations and previous backfit decisions were raised as challenges to the adequacy of the CLB. Additionally, cuts in the research budget were challenged as creating regulatory gaps to ensuring adequate protection. A commenter stated that stricter safety standards than those of the United States are being applied in some European countries, and this was evidence of the inadequacy of the CLB.

The Commission does not agree with these comments. The examples cited were all identified by the NRC through the inspection and oversight processes. The identification of these issues through the regulatory process demonstrates that the Commission's programs are effective in identifying new technical and safety issues and areas of noncompliance and at resolving these issues in a timely fashion. The resolution of issues can occur through a variety of mechanisms. The NRC used rulemaking to address resolution of hydrogen combustion/explosion issues and anticipated transients without scrams. The NRC has also issued generic letters requiring licensee analysis and description of action taken in response to the analysis for motor-operated valves, floor drains, and potential accidents while the reactor is shut down. In each example provided by the commenters, appropriate corrective action was taken or is being taken on a plant-specific or on an industry-wide basis to either modify the CLB to resolve the concern or to ensure the continued compliance with the present CLB.

Grandfather clauses in existing regulations and exemptions granted to existing regulations do not change the Commission's conclusion: that the regulatory process ensures that plant-specific CLBs provide an acceptable level of safety. Grandfather clauses are provided in the regulations for one of two reasons. The plants grandfathered by a specific regulation either have a technically equivalent (but not an exact) resolution to the action required in the rule or the issue is considered a safety enhancement to be required on new designs but not backfitted on older plants. In either case, the regulatory process of rulemaking requires the

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Commission to make a decision on whether new requirements should be backfitted to all plants or a subset of plants and to provide the basis for that decision as part of the regulatory record. A review of existing regulations did not identify any grandfather clauses in which the decision to implement the specific regulation included time-dependent factors. In this light, the Commission continues to believe that current regulations, which may contain grandfather clauses, continue to provide and ensure that all plants provide an acceptable level of safety.

Exemptions to the regulations are granted with an approved plant-specific technical justification. Generally, exemptions are granted because the licensee has an equivalent but alternative method of satisfying the intent of the regulation. Thus, unless the exemption involves a time-dependent function, the existence of an exemption does not change the NRC's conclusion that the regulatory process is sufficient to ensure that the CLBs of all plants provide an acceptable level of safety for the renewal term of operation. The license renewal applicant will be required to review all exemptions granted by the Commission. Exemptions that do contain time-dependent considerations will be addressed in the license renewal application, as required by § 54.21(c).

Changes in NRC's research funding are not creating "regulatory gaps," as alleged by a commenter. The NRC's research funding is allocated based upon the safety significance and priority of the issues involved. The important issues affecting safety are funded, and it is expected that they will continue to be funded in the future. Lower-priority issues are addressed as funding permits.

The Commission does not agree that stricter safety standards are being applied in some European countries than are those of the United States. In many cases, the standards used by other countries are identical to those used in the United States. In other cases, there are differences between standards or approaches to regulation, but these differences cannot necessarily be characterized in terms of standards being stricter or less strict. The issue is not a comparison of the strictness of specific standards but, rather, plant safety. The requirements and regulations when coupled with the regulatory programs must be adequate to provide reasonable assurance that authorized activities can be conducted without endangering the health and safety of the public. As noted previously, the Commission has

concluded that the regulatory processes are sufficiently broad and rigorous to provide such reasonable assurance.

In sum, the NRC's regulatory process is sufficiently broad and rigorous to establish that the added discipline of a formal licensing review at license renewal against the full range of current safety requirements is not necessary to ensure that extended operation is not inimical to the public health and safety.

(iii) Compliance With the Licensing Bases

The Commission has determined that a finding of compliance of a plant with its current licensing basis is not required for issuance of a renewed license. When a plant's original operating license was issued, the Commission made a finding, pursuant to 10 CFR 50.57(a)(1), that construction of the plant had been substantially completed and was in conformity with the construction permit, the operating license application, the requirements of the Atomic Energy Act, and the NRC's rules and regulations. That finding was essentially equivalent to a finding that the plant was in compliance with its licensing basis as it existed at the time of issuance of the operating license.

Once the operating license is issued, the licensee must continue to comply with its licensing basis unless the licensing basis is properly changed or the licensee is formally excused by the NRC from compliance. Assurance of continued licensee compliance during the license term rests on two factors: (1) Licensee programs required by the NRC's rules and regulations to ensure continued safe operation of the plant, and (2) the NRC's regulatory oversight program.

The licensees' programs include self-inspection, maintenance, and surveillance programs that monitor and test the physical condition of plant equipment as the plant operates, as well as review of systems, structures, and components. Through these programs, licensees identify the degradation of components due to a number of different environmental stressors and are, in general, able to replace or refurbish their equipment so that the frequency and severity of challenges to plant systems, structures, and components would be expected to remain within acceptable limits and the necessary safety features would be expected to work when actually called upon under transient or accident conditions.

The Commission's inspection program has been constructed around a series of inspection procedures that provide for the routine examination of activities at an operating nuclear facility on a

periodic basis. Once licensed, a nuclear facility remains under NRC surveillance and undergoes periodic safety inspections during construction and operation. The inspection program is designed to obtain sufficient information on licensee performance, through direct observation and verification of licensee activities, to determine whether the facility is being operated safely and whether the licensee management control program is effective and to ascertain whether there is reasonable assurance that the licensee is in compliance with the NRC regulatory requirements. The program includes inspection of the licensee's performance in technical disciplines such as operations, radiological controls and protection, maintenance, surveillance, emergency preparedness, physical security, and engineering.

The NRC inspection program relies primarily on audits. Thus, it does not necessarily examine every activity or item, but verifies, through carefully selected samples, that activities are being properly conducted to enhance or ensure safety. The inspection process monitors the licensee's activities and provides feedback to the licensee's plant management to allow it to take appropriate corrective actions.

The current inspection program allocates NRC's inspection resources between three types of inspections. These are mandatory inspections, regional initiative and reactive inspections, and special emphasis inspections and are specified in the NRC Inspection Manual Chapters. A minimum set of mandatory routine inspections, referred to as the Core Program, are performed at each operating unit to evaluate licensee performance and identify potential safety concerns in their early stages of development. This group of inspections is a primary activity for resident inspectors and regional specialist inspectors. These inspections emphasize observation and evaluation of ongoing facility operations and supporting activities affecting the safety function of facility systems, structures, and components.

The inspections known as regional initiative or reactive inspections are conducted by the NRC staff in response to plant safety performance concerns or where NRC believes the greatest safety benefit can be obtained. The initiative component of the inspections program is used to follow up on problems identified in licensee performance during the mandatory routine inspections. The reactive component of the inspection program allows NRC to respond to allegations, unusual circumstances, and

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operational events. These reactive efforts vary from inspections of minor events and allegations to evaluation of major events. They are far-ranging and involve assessment of the initial response to the incident itself, participation in the restoration of the plant to a safe state, and post-event evaluation. Frequently, the post-event analysis points out the need to inspect other plants that may have similar problems.

Lastly, special emphasis inspections include mandatory team inspections that provide for inspection emphasis in a selected area of plant operations or inspections to follow up on safety issues that are generic in nature and special headquarters team inspections that are intended to address a specific area of concern regarding safe operations. Multidisciplinary teams, led by a supervisor or an experienced team leader, are designed to inspect ongoing engineering and operational activities concurrently and audit the administrative controls governing the management of the activities. This type of inspection gives NRC an indepth, detailed look at how the licensee's organization functions as a unit. Additionally, it offers insight into the overall effectiveness of the licensee's program. Thus, a team inspection provides a comprehensive examination of a licensee's program, whether it is a facility under construction or in operation. Team inspections are manpower intensive, and the multidisciplinary aspect gives an added perspective that cannot be achieved by individual inspectors. For example, operational readiness team inspections are used by the regional staff to make integrated assessments of hardware, procedures, and plant personnel performance. Most operational readiness team inspections are conducted during the startup of new plants or during the startup of currently licensed plants after long outages. They generally are about a week in duration and include around-the-clock coverage during critical evolutions. These performance-oriented multidiscipline team inspections have been found to be an effective means for assessing licensee performance.

It is particularly important to note that implementation of the NRC inspection program does not supplant the licensee's programs or responsibilities. Rather, it provides a feedback mechanism and an independent verification of the effectiveness of the licensee's implementation of its programs to ensure that operations are being

conducted safely in accordance with applicable NRC requirements.

The NRC staff performs inspections on nuclear power reactors both during construction and throughout the plant operating life. As a reactor progresses through design, construction, preoperational readiness, startup, operation, and now license renewal, the inspection program changes to meet the specific needs of each phase. An onsite resident inspector provides a continuous regulatory presence, as well as a direct contact between NRC and the licensee. From the vantage point of NRC, the resident inspector is a key individual in determining what additional inspections need to be performed at a specific site and in ensuring that the overall inspection program at the facility is accomplished.

The regular inspection activity of the resident inspector is supplemented by the efforts of engineers and specialists from the NRC's regional and headquarters staff who perform inspections in a wide variety of engineering and system disciplines, ranging from civil and structural to health physics and reactor core physics. The specialist inspectors provide a perspective that is different from, but complementary to, that of the resident inspector. Since the specialists inspect many different plants and therefore see many different ways of accomplishing a function, they have a comprehensive view of their specialty.

In summary, the inspection program, as discussed in NRC Inspection Manual Chapter (IMC) 2500, Reactor Inspection Program, and IMC-2515, Light-Water Reactor Inspection Program—Operations Phase, and as implemented, provides reasonable assurance that conditions adverse to quality and safe operation are identified and corrected and that a formal review of compliance by a plant with its licensing basis is not needed as part of the review of that plant's renewal application.

Both the licensee's programs for ensuring safe operation and the Commission's regulatory oversight program have been effective in identifying and correcting plant-specific noncompliance with the licensing bases. These programs will continue to be implemented throughout the remaining term of the operating license, as well as the term of any renewed license. In view of the comprehensiveness, effectiveness, and continuing nature of these programs, the Commission concludes that license renewal should not include a new, broad-scoped inquiry into compliance that is separate from and parallel to the Commission's ongoing compliance oversight activity.

Noncompliances are generally independent of (in a casual sense) the renewal decision.¹ For example, failures to comply with station blackout requirements are not "caused" by the impending expiration of an operating license.

(iv) Consideration of the Current Licensing Bases

Section 54.21(a) of the proposed rule would have required that a licensee "compile a list of documents identifying portions of the current licensing basis relevant to the integrated plant assessment." This list was to have been submitted to the NRC as part of the renewal application. The proposed rule also would have required the licensee to "review the current licensing basis" compilation for the purpose of determining the systems, structures, and components to be evaluated and the acceptance criteria to be used in the integrated plant assessment." Finally, the proposed rule would have required the licensee to maintain "all documents describing the CLB" in an auditable and retrievable form. A large number of public comments were received on the need to compile the CLB. Commenters argued that compilation of the CLB in an auditable form is unnecessary since all such documents are already on file with the NRC and in its public document room. In addition, these commenters also indicated that compilation of the CLB is not necessary for the integrated plant assessment (IPA) since § 54.21(a)(4) of the proposed rule would have required the applicant to describe and provide the basis for resolving issues presented by the age-related degradation of SSCs. Others commented that the NRC should not only require a list of the documents comprising the CLB, but also the documents themselves. These commenters stated that the NRC should review the documents to ensure that the plant is complying with the CLB.

After consideration of all comments concerning the compilation of the CLB, the Commission has concluded that it is not necessary to compile, review, and submit a list of documents that comprise the CLB in order to identify the systems, structures, and components (SSCs)

¹ However, allegations that the implementation of a licensee's proposed actions to address age-related degradation unique to license renewal has or will cause noncompliance with the plant's current licensing basis during the period of extended operation, or that the failure of the licensee to address age-related degradation unique to license renewal in a particular area has or will cause such noncompliance during the period of extended operation would be valid subjects for contention, since the claim essentially questions the adequacy of the licensee's program to address age-related degradation unique to license renewal.

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important to license renewal and to be considered in the IPA.

The Commission has determined that licensees should be provided the flexibility to develop the methodology to ensure that (1) all SSCs important to license renewal have been identified, (2) the effects of age-related degradation unique to license renewal have been evaluated, and (3) the necessary programs for management of this age-related degradation have been or will be implemented, rather than the Commission explicitly prescribing compilation of the CLB. Therefore, the final rule has been revised to require license renewal applicants to describe and justify their methods (1) for identifying and screening all SSCs important to license renewal; (2) for ensuring that the current licensing basis is used, as necessary, to evaluate and establish aging management programs; and (3) for ensuring that a licensee's age-related degradation management program maintains the current licensing basis for SSCs during the period of extended operation.

The Commission will evaluate the licensee's methodology based on an understanding that the design of many components, including safety margins, was initially assumed to have a service life of 40 years. The licensee's methodology should refer to the CLB, as necessary, to identify and define the technical limits for operation of important components. These technical limits would need to be evaluated as part of a renewal application to ensure that operation during the renewal term would not exceed the design capability of specific components, including appropriate safety margins. The evaluation of the effects of fatigue on SSCs is an example of how the CLB along with other documentation may be used in the IPA. To evaluate the effects of fatigue, a licensee would have to refer to the CLB to identify the design assumptions affecting service life, actual plant conditions, and applicable requirements and commitments in order to determine whether the character or magnitude of fatigue is greater than assumed for the initial operating term and new actions need to be initiated.

The Commission has revised §§ 54.21(a) and 54.37 to more clearly set forth the licensee's obligations with respect to the CLB. First, the renewal applicant must describe and justify the methodology used to identify SSCs important to license renewal. The methodology must include a description of how the CLB was considered in identifying effective programs for SSCs important to license renewal that have age-related

degradation that is unique to license renewal.

Second, the licensee is required by § 54.37(a) to maintain all documents referenced in the IPA in an auditable and retrievable form. By "auditable and retrievable," the Commission intends that the documents be available for licensee use and NRC inspection within a reasonable time period. While the documents need not be stored together at the same physical location, the licensee should have a system so that the documents can be retrieved from storage.

Third, the licensee's evaluation of aging management programs includes consideration of the CLB as appropriate.

The Commission has also added a supplement.

d. Second Principle: Maintaining the Licensing Basis During Renewal Term

(i) General

The second principle for license renewal is that the plant-specific licensing basis must be maintained during the renewal term in the same manner and to the same extent as during the original licensing term. This principle is a necessary complement to the first principle. Several provisions in the rule serve to ensure adherence to the licensing basis: (1) Section 54.22 requires that the technical specifications be changed as needed for license renewal, (2) § 54.33(d) requires as a condition of the license that the licensee maintain the effectiveness of programs approved by the staff to manage age-related degradation unique to license renewal, (3) § 54.37(b) requires the licensees to periodically update their FSAR supplement to accurately reflect the current status of systems, structures, and components important to license renewal and of age-related degradation management programs, (4) § 54.37(c) requires licensees to annually submit a list of changes to programs managing age-related degradation unique to license renewal that do not decrease the effectiveness of these programs and a summary of safety evaluations supporting such changes, and (5) § 54.33(e) states that the licensing basis for the renewed license shall include the plant's current licensing basis as defined in § 54.3(a), which includes those provisions addressing age-related degradation. These provisions, together with the continuation of the NRC's regulatory oversight program throughout the term of a plant's renewed license, will ensure that the current licensing basis will be maintained throughout the

term of the renewed license in the same manner and to the same extent as during the original licensing term.

The Commission intends to continue its regulatory oversight program throughout the term of renewed licenses. This program, discussed in detail in section IV.c, "Current Licensing Basis," has been successful in the past in ensuring licensee compliance with applicable requirements and licensee commitments, as well as identifying important areas of noncompliance. The Commission believes that this oversight, when continued throughout the term of the renewed license and modified as necessary to reflect new information and experience of extended operation, will also provide reasonable assurance that licensees are in compliance with their plants' licensing bases during the term of their renewed licenses.

Several commenters expressed concern that the wording of 10 CFR part 54 elevated all commitments of the current licensing basis to an equivalent level of a license condition for the renewal term. The Commission did not intend that all commitments have equal safety importance or enforcement status. The Commission recognized that the current licensing basis consists of many diverse elements of varying safety importance and enforcement status. Some elements are formal license conditions, technical specifications, or additional conditions that require prior NRC approval before changing; others are written commitments on the docket that may be changed by the licensee.

By stating that the current licensing basis is maintained for the renewal term, the Commission intends to ensure the continuation of an acceptable level of safety for that plant. Through its review and oversight programs, the Commission will ensure that the operation of the plant will remain within previously established limits. The Commission included § 54.33(e) to specifically state that the status of commitments on the existing 10 CFR part 50 docket would remain unchanged by the renewed license. However, if a licensee's previous commitments are relied upon in the renewal application as an effective program to manage age-related degradation during the renewal term, these commitments will become part of the licensing basis for the renewal term since they would form part of the bases for the Commission's finding that age-related degradation unique to license renewal will be effectively managed during the renewal term. These commitments can only be

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changed in accordance with § 54.33(d) of the final rule.

(ii) Licensing Basis Changes

The principle of maintaining the licensing basis does not preclude changes to the licensing basis. However, changes to the plant's current licensing basis that are unrelated to age-related degradation unique to license renewal will not be considered or proposed by the Commission in determining whether to grant the renewal application.

The current licensing basis for any plant, as defined in § 54.3 of the final rule, generally continues to evolve and change as a result of both licensee and NRC action. Licensees may seek to change the current licensing basis for their plants as a result of new information learned about systems, structures, and components used in the operation of their plants. The licensing basis for a plant may also change as the Commission adopts new requirements that are implemented by existing plants or as existing requirements are modified and backfit onto the older plants. These licensing basis changes are not intended to address age-related degradation during the renewal term. To focus the NRC's review of a renewal application on age-related issues and preclude consideration of issues not relevant to age-related degradation that occurs during the renewal term, the Commission proposed, in § 54.3, that the current licensing basis become fixed at the time of application and remain fixed during the review. Many commenters disagreed with the Commission's proposal to restrict changes to the current licensing basis, pointing out that licensees must have the flexibility to modify their licensing bases to meet operational needs. Some commenters recognized, however, that the licensing basis for the operating license and the licensing basis for the renewal application must remain consistent throughout the review process. They suggested that licensees be permitted to change the licensing bases in the operating license context and periodically inform the NRC of such changes and any potential impact upon the integrated plant assessment.

After considering these views, the Commission agrees that licensees should be provided the flexibility to request changes to the existing operating license for reasons other than age-related degradation. These changes must be made using current regulatory practices, e.g., under 10 CFR 50.59 or amendment to the existing operating license pursuant to 10 CFR 50.90. A

license renewal application should not include any changes to the current licensing basis other than those necessary to address age-related degradation unique to license renewal. An opportunity for hearing on any license amendment is provided in accordance with section 189 of the Atomic Energy Act.

To ensure that the effect of changes to a renewal applicant's existing licensing basis is evaluated during the review of a renewal application, renewal applicants will be required to update the renewal application (including the integrated plant assessment) annually. Each update must contain a description of the nature of the change in the licensing basis; the systems, structures, and components affected; any additional measures needed to ensure that age-related degradation unique to license renewal can be managed during the renewal term; and any change in the effectiveness of programs credited for managing age-related degradation. Whether a licensee has correctly identified the potential impact of such changes in its renewal application may be litigated in a hearing on the renewal application.

e. Aging Management and Integrated Plant Assessment

(i) General

The rule requires that the applicants for license renewal take necessary actions to ensure that the plant will continue to meet the CLB during the renewal term. Required actions would include those necessary for the effective management of age-related degradation of systems, structures, and components (SSCs) important to license renewal.

(ii) Effects of Aging

Aging can affect all SSCs to some degree. Generally, the changes due to the aging mechanisms involved are gradual. Licensees are required, by current regulations, to develop and implement programs that ensure that conditions adverse to quality, including degraded system performance, are promptly identified and corrected. As a result of these programs, degradation due to aging mechanisms is currently being addressed to varying degrees, either directly or indirectly, for many of the SSCs important to license renewal. However, age-related degradation becomes a subject of regulatory concern in the context of license renewal when (1) its effects are different in character or magnitude after the term of the current operating license (the period of extended operation) or (2) its effects were not explicitly identified and

evaluated by the licensee for the period of extended operation and the evaluation found acceptable by the NRC or (3) it occurs only during the period of extended operation.

Continued safe operation of a commercial nuclear power plant requires that SSCs that perform or support safety functions continue to perform in accordance with the applicable requirements in the licensing basis of the plant and that other plant SSCs do not substantially increase the frequency of challenges to plant safety systems. As a plant ages, a variety of aging mechanisms are operative. They include fatigue, erosion, corrosion, erosion/corrosion, wear, thermal and radiation embrittlement, microbiologically induced effects, creep, and shrinkage.

Existing regulatory requirements, ongoing licensee programs, and national consensus codes and standards address the aging mechanisms indicated above and the means of mitigating age-related degradation. However, the Commission believes that certain age-related degradation that may be important in the period of extended operation is not required to be addressed during the present license term in a manner that would be adequate for the period of extended operation. For example, if a degradation effect first occurs only after 40 years or has been determined by analysis or test to be unimportant for the first 40 years, there would be no regulatory requirement to address this aging during the initial 40-year term of license. Alternatively, degradation may have been analyzed, evaluated, and acted on in the original design for only 40 years, but not analyzed for the period extending beyond 40 years (as is generally the case, for example, with fatigue and with environmental qualification of equipment). Such situations must be analyzed for the period of extended operation as a basis for determining any additional aging management actions that may be required for license renewal.

It should be noted that the term "unique to license renewal" does not mean that the timing of required age-related degradation management actions is necessarily limited to the period of extended operation. Indeed, actions may be required well within the original license term in order to achieve a desired result for the period of extended operation. For example, in connection with the pressurized thermal shock issue, reduction of neutron flux to the reactor vessel may well need to be started years before original license expiration in order to prevent excessive

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radiation embrittlement in the period of extended operation.

Age-related degradation of SSCs are important to license renewal, if unmitigated, could lead to the loss of required functions, unacceptable reduction in safety margins, or higher rates of challenge to plant safety systems during the renewal term. Given the close connection between renewal and age-related degradation, the Commission concludes that a formal, disciplined licensing review of age-related degradation unique to license renewal is necessary.

(iii) Integrated Plant Assessment

The approach reflected in the final rule is to require each renewal applicant to address age-related degradation unique to license renewal through an integrated plant assessment (IPA) that demonstrates that the facility's SSCs important to license renewal have been identified and that age-related degradation unique to license renewal will be managed, as needed, to ensure that the facility's licensing basis will be maintained throughout the term of the renewed license. The required assessment consists of a screening process to select SSCs important to license renewal, an evaluation of the age-related or performance degradation of those SSCs important to license renewal to determine if the degradation is unique to license renewal, and when such degradation is identified, an evaluation and demonstration that new programs or licensee actions will be implemented to prevent or mitigate the age-related degradation unique to license renewal during the period of extended operation. In the first principle, the Commission concluded that the regulatory processes provide reasonable assurance that the current licensing bases of operating plants provide an acceptable level of protection of the public health and safety or common defense and security so that a broad safety review is not required at license renewal. This conclusion covers age-related degradation occurring during the current licensing term. Such degradation is being addressed by ongoing programs to identify and manage the degradation so that corrective action is taken to ensure continued safe operation. Therefore, for a renewal of an operating license, the Commission has determined that only degradation mechanisms or effects that are unique to the period of operation beyond the current licensed term (as defined in § 54.3) should be the focus of evaluation for a renewal license. In order to accomplish the above, the

Commission has established in the final rule specific requirements that an IPA must satisfy.

First, the IPA must contain a description of the methodology to be used to identify the plant-specific SSCs that satisfies the rule definition of SSCs important to license renewal. The scope of the rule definition of SSCs important to license renewal is discussed in greater detail below. The methodology should contain the criteria used to select components and to identify components that contribute to the performance of a required system function or whose failure could prevent the performance of a required system function. The methodology should also describe the criteria to be used in determining whether the age-related degradation of individual structures or components is unique to license renewal.

Second, the IPA should contain specific lists of SSCs important to license renewal. The lists may be provided in a combined format but must address the specific information required by this rule.

Third, the renewal applicant must specifically identify those components that are subject to age-related degradation unique to license renewal and provide the technical basis for structures and components that the applicant has determined do not have degradation unique to license renewal. The justification for excluding components should address such factors as the design or service life of the component or structure.

Fourth, the IPA should contain (1) a demonstration that, for all structures or components identified as being subject to degradation mechanisms or exhibiting degradation effects unique to license renewal, the degradation mechanism or effects will be addressed through an effective program as defined in the rule, or (2) a demonstration that an effective program is not necessary for a specific component.

The Commission concludes that applicants for license renewal should address age-related degradation unique to license renewal by focusing on the identification and management of age-related degradation mechanisms for those SSCs that are of principal importance to the safety of the plant. The Commission also believes that the focus of an age-related degradation evaluation for a license renewal cannot be limited to only those SSCs that the Commission has traditionally defined as safety related. The initial review of the plant covered both safety-related and non-safety-related systems and was primarily concerned with ensuring that the systems and components would not

have to operate beyond their design basis during the initial 40-year license. Therefore, the Commission has determined that, in order to ensure the continued safe operation of the plant during the renewal term, SSCs important to license renewal should include (1) safety-related equipment, (2) all non-safety related SSCs that directly support the function of a safety-related SSC or whose failure could prevent the performance of a required function of a safety-related SSC, (3) all SSCs relied upon to meet a specific set of Commission regulations, and (4) all SSCs subject to the operability requirements contained in the facility technical specification limiting conditions for operation.

Thus, SSCs important to license renewal would include those relied on to remain functional during design basis events, including conditions of normal operation, anticipated operational occurrences, design basis accidents, external events, and natural phenomena for which the plant was designed. SSCs important to license renewal also include those non-safety-related SSCs that function to support safety-related systems because their failure would render a safety-related SSC inoperable.

The Commission has determined that SSCs having operability requirements in technical specification limiting conditions for operation are important to license renewal. The Commission notes that this definition is not limited solely to those components that are specifically identified in the technical specifications. This type of interpretation would result in only the top level systems being evaluated to ensure that the effects of age-related degradation unique to license renewal would be managed during the renewal term, but all the supporting systems necessary for operation would not be similarly evaluated. It would be similar to saying that the emergency diesel generators are important to license renewal but the diesel fuel transfer system or fuel storage tanks are not. Current regulatory practice for technical specifications defines the necessary criteria that must be satisfied for a system, structure, or component to be operable or to have operability. Specifically, a system, subsystem, train, component, or device is operable when it is capable of performing its specified function(s) and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or any other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related

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support functions. The Commission expects licensees to apply the same regulatory practice with respect to operability for purposes of determining SSCs important to license renewal.

In addition, plants typically have five modes (BWR) or six modes (PWR) of operation specified in the technical specifications. The Commission is not restricting the definition of SSCs important to license renewal to any particular mode of operation and considers equipment operability in all modes of operation to be equally important in defining SSCs important to license renewal.

In sum, the Commission defines the scope of this portion of the definition of SSCs important to license renewal to include all systems or components necessary for operation in any mode of plant operation that has operability requirements in the plant technical specifications limiting conditions for operation. This includes (1) all systems or components specifically identified in the technical specification limiting conditions for operation, (2) any system or component for which a functional requirement is specifically identified in the technical specification limiting conditions for operation, and (3) any necessary supporting system or component that must be operable or have operability in order for a required system or component to be operable.

Examples of a component or system meeting category (1) could include snubbers, radiation monitors, and specific emergency core cooling systems. An example of the type of components that would be in category (2) would be systems or components that would be necessary for ensuring primary containment integrity. Current BWRs are required to have primary containment integrity during power operation. Thus, all containment penetrations and isolation valves would be important to license renewal. An example of components or systems in category (3) would include all supporting systems and components supporting operation of the recirculation system in BWRs. As required in the technical specification limiting conditions for operation, one recirculation loop must be operable. Because any one of the recirculation loops could be used, the operability requirements would have to extend to all recirculation loops and therefore the entire recirculation system would be defined as important to license renewal. Under the current technical specifications, the supporting systems necessary for the loop operation must also be operable in order for the

recirculation loop to be considered operable. These would include such systems as the non-safety-related seal water cooling systems and non-safety-related power supplies for the recirculation pumps. Thus, these non-safety-related systems would be considered important to license renewal.

Screening of SSCs will identify those that, by virtue of their roles in ensuring the safety of plant operations, are important to license renewal and, accordingly, could require additional attention. In connection with the integrated plant assessment, it is recognized that there are many SSCs important to license renewal that are either covered by the existing ongoing NRC requirements and licensee-established programs or are not subject to age-related degradation. The integrated plant assessment is expected to take such factors into account so that programs for managing age-related degradation could be properly scoped and focused.

The renewal applicant is required to describe and justify the method to be employed for the SSC selection process. The method should be comprehensive and primarily deterministic so that the Commission could conclude with reasonable confidence that all SSCs important to license renewal have been identified and evaluated.

The major technical issues raised in various comments that addressed the proposed rule and one or more of its supporting documents were related to (1) the selection of SSCs important to license renewal and (2) what constitutes an established effective program for managing aging in operating nuclear power plants. Three key issues related to the selection of SSCs important to license renewal and requiring management of aging during a renewed license term were raised. These issues are addressed below:

(1) A number of commenters referred to the NUMARC "Methodology to Identify and Evaluate Plant Equipment for License Renewal" (December 1990) and proposed changing the rule and its supporting documents in ways that would conform to this methodology or endorse it. The Commission has decided not to incorporate a specific methodology in the rule. The Commission will continue to review the NUMARC methodology to ensure that the methodology for screening SSCs important to license renewal addresses all important features required by the rule. The Commission notes that elimination of structures and components important to license renewal from further aging consideration on the basis of an *a priori*

claim by the licensee that they are subject to an effective program is not an acceptable technical basis since it does not include an evaluation of the possibility of age-related degradation problems unique to license renewal and an evaluation of the adequacy of the program to manage any such age-related degradation. Such an approach could result in elimination of most if not all of the structures and components in the plant from any substantive consideration for age-related degradation. An acceptable technical basis should include a demonstration by appropriate technical arguments that the age-related degradation is not unique to license renewal or programs for managing age-related degradation unique to license renewal are effective.

(2) In a related comment, a stated concern was that the inclusion of all SSCs used in safety analyses or plant evaluations could include any work done in response to any NRC inquiry, e.g., balance-of-plant systems. As stated in the final rule, the Commission considers the safety-related SSCs and those relied on to demonstrate compliance with the Commission's regulations for 10 CFR 50.48 (Fire Protection), 10 CFR 50.49 (Environmental Qualification), 10 CFR 50.61 (Pressurized Thermal Shock), 10 CFR 50.62 (Anticipated Transients Without Scram), and 10 CFR 50.63 (Station Blackout) as important to license renewal. As part of 10 CFR 50.49, certain post-accident monitoring equipment specified as Category 1 and 2 in Revision 2 of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," are covered in the scope of the license renewal rule. Such post-accident monitoring equipment is important to license renewal. The rule also includes SSCs that directly support the operability of safety-related equipment. The rule has been revised to include SSCs that have operability requirements contained in technical specification limiting conditions for operation in lieu of the less specific proposed requirement to include all SSCs used in any safety analysis or plant evaluation. This revised scope is consistent with the Commission's intent to not reexamine the entire plant for license renewal but to ensure that all SSCs important to safe plant operation are identified and evaluated for the effects of age-related degradation unique to license renewal.

(3) A commenter further stated that a system interaction review would be required to meet the criterion that SSCs important to license renewal are any,

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including non-safety-related, SSCs whose failure could prevent satisfactory accomplishment of required safety functions. It was stated that USI A-17, Systems Interaction at Nuclear Power Plants, was resolved via Generic Letter (GL) 89-18 with no specific action required of licensees.

The Commission's interpretation differs from that of the commenter. The inclusion of SSCs whose failure could prevent another SSC from accomplishing a safety function is intended to provide protection against safety function failure in cases where the safety-related structure or component is not itself impaired by age-related degradation but is vulnerable to failure of another structure or component that may be so impaired. Two examples of these types of SSCs are: (1) Nonseismically qualified equipment located near seismically qualified equipment and thus potentially affecting seismically qualified equipment, and (2) the direct connection of non-safety-related systems (i.e., some instrument air systems) with safety-related systems. Other examples are components providing power, cooling, fluid, etc., to safety-related SSCs.

The Commission intends this provision of the definition of SSCs important to license renewal to apply to SSCs with a reasonably direct bearing on the functioning of the safety-related SSCs. This provision of the rule does not include the propagation of failures that are hidden or unanticipated as included in the definition of a system interaction, GL 89-18, or other indirect effects that are so remote or speculative as to cause no reasonable safety concern. However, if a licensee has conducted a partial system interaction study and made certain commitments on the docket, then these commitments are part of the current licensing basis and should be considered by the licensee in determining SSCs important to license renewal.

(iv) Supplementary Use of Probabilistic Techniques

The screening methods—as well as aging management approaches—selected by the license renewal applicants may also include use of probabilistic risk assessment (PRA) techniques as a supplement to the primarily deterministic methods. The public comments at the November 1989 license renewal workshop and those submitted in writing following the workshop reflected the view that the use of PRA should be permitted, but not required, in the screening process for SSCs.

Additionally, three comments on the proposed rule recommended the use of PRA for the selection of SSCs important to license renewal. A comment was made to emphasize the importance of common-cause failures as an important factor in assessing and managing aging. The Commission considers that at the present time appropriate aging data and models have not been developed for many SSCs for inclusion in the PRAs, and uniform criteria do not exist for evaluating the PRA results.

Nevertheless, at the present time, probabilistic assessments can be a useful adjunct to deterministic methods to help draw attention to specific vulnerabilities and to help guard against significant oversights in the screening process. In view of the PRA limitations discussed, probabilistic assessment alone is not an acceptable basis for the exclusion of SSCs to be evaluated as part of an IPA. It may be useful to identify additional SSCs to be evaluated as part of the IPA.

(v) Management of Age-Related Degradation Unique to License Renewal

The planning for the management of age-related degradation unique to license renewal reflects the knowledge that materials, stressors, the operating environment, and their interactions contribute to age-related degradation in SSCs. When these interactions cause degradation of reliability and impact safety, then the effects of age-related degradation unique to license renewal must be mitigated to ensure that the aged SSCs will adequately perform their design safety functions. The acceptable elements of an aging management program are described below.

To gain the necessary understanding of aging mechanisms, the renewal applicants will need to review the SSC design, fabrication, installation, testing (including performance and nondestructive testing), inservice inspection, operation, and maintenance to the extent necessary in performing the IPA.

Elements for timely mitigation of age-related degradation effects include inspection, surveillance, condition monitoring, trending, recordkeeping, replacement, refurbishment, and appropriate adjustments in the operating environment of the equipment in which the degradation occurs.

Adequate recordkeeping is needed on items such as transients, component failures, root causes, and repair and replacement of components. Records being generated now will be useful in providing the technical bases for continued safe operation of nuclear power plants.

Maintenance, refurbishment, replacement of parts and components, residual life assessment, and changes in operating environment are other elements useful for mitigating age-related degradation effects. Timely mitigation of age-related degradation through servicing, repair, refurbishment, or replacement of components is the prime function of an effective program. Management of age-related degradation comprises a collection of activities that to a large extent relate directly to physical maintenance of components.

Operating practices that reduce stresses on the equipment by adjustment of the operating environment are also important considerations to mitigating degradation effects. For example, if warranted, operations could be required in an environment with lower temperatures, reduced flux, or controlled humidity. However, in taking these actions, the potential consequences need to be evaluated and considered in order to guard against inadvertent adverse side effects on some other aspect of safety.

Six key issues raised by commenters related to established effective programs (EEPs), as that term was used in the proposed rule, and to integrated plant assessment for the management of age-related degradation during a renewed license term. These issues and the Commission's responses can be summarized as follows:

(1) Commenters stated that investigation and mitigation of age-related degradation should be restricted to only "significant" degradation. The Commission notes that § 54.3 of the rule provides definitions of the terms "aging mechanisms" and "age-related degradation." Draft Regulatory Guide DG-1009 contains staff-proposed guidelines as to aspects on which to focus for aging management, as a part of integrated plant assessment, without quantifying the degree and depth of age-related degradation. Inclusion of the terms "significant" or "potentially significant" age-related degradation would result in unnecessary definitions for all sorts of different degrees of degradations and in subjective evaluations and judgments. The state of the art and the existing knowledge base have not advanced sufficiently at this time to define precisely what constitutes "significant" age-related degradation. Therefore, the Commission did not include the term "significant degradation" in the rule.

(2) Commenters content that some of the ongoing programs contribute to aging. The Commission recognizes that a few of the current test programs may result in degradation in some

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components and structures. This technical test-related issue is being addressed as part of ongoing regulatory activities.

(3) Commenting on a related topic, a commenter stated that none of the NRC goals of the Nuclear Plant Aging Research (NPAR) program found their way into the requirements in the proposed rule. Though the NPAR goals are not included verbatim as requirements in the rule, the NPAR results were considered in developing the rule and associated regulatory guidance. Therefore, the Commission believes that a separate requirement for addressing the elements of the NPAR goals is unwarranted.

(4) Comments were received to the effect that the integrated plant assessment is too broad and that aging management is important not only for license renewal but for the current licensed terms as well. The Commission has revised the rule so that the integrated plant assessment is explicitly aimed at the management of age-related degradation unique to license renewal. The Commission recognizes that current aging management programs need not be reviewed except to the extent that the programs must address age-related degradation that occurs only during the period of extended operation after the term of the current license or whose effects are different in character or magnitude during the period of extended operation.

A major aspect of the license renewal rule and of a licensee's efforts to determine what actions are necessary to manage age-related degradation is a practical understanding of the necessary aspects of a program that is technically adequate to manage such degradation. As a result of comments related to the scope and contents of aging management programs, the rule was revised to eliminate reference to an established effective program. Instead, the term effective program (EP) is used. The Commission believes that some license activities or programs are adequate to manage age-related degradation with little or no modification. However, since the criteria by which the effectiveness of a program is judged are the same for programs already established as for new or planned programs, "established effective program" as a special term is not useful. The actions necessary, as part of the integrated plant assessment, include a review of the SSCs that are important to license renewal, identification of age-related degradation unique to license renewal, and an assessment of the applicants' proposals,

including any existing programs, to determine whether they are technically adequate to manage age-related degradation unique to license renewal. This review should identify what, if any, changes are necessary to ensure that age-related degradation unique to license renewal will be managed for all SSCs important to license renewal.

While the criteria in 10 CFR 54.21 are not specific with respect to evaluating the effectiveness of current licensee programs, there are numerous aspects of a technically adequate program that are dependent upon factors such as the specific type of structure or component and the applicable degradation mechanisms. Examples of aspects that may be included in an effective program are (a) scheduled inspection and surveillance, (b) condition monitoring, (c) functional testing that may include system or component testing, (d) nondestructive testing, (e) refurbishment and replacement programs, (f) root cause determination of degraded equipment performance or failures that specifically includes and addresses aging mechanisms, (g) corrective action program that evaluates frequency and cause of equipment failure, (h) use of vendor information to determine replacement and refurbishment intervals, (i) evaluation of surveillance intervals and operational experience to determine whether or not degradation is occurring and what further action is appropriate, and (j) residual life evaluation and reanalysis.

The Commission has a number of existing requirements that are directed toward detecting and managing age-related degradation in important safety systems. These include the assessment and feedback of operational experience through NRC regulations, bulletins, and generic letters; inservice inspection and tests; surveillance; and technical specification requirements. Commission initiatives such as nuclear plant aging research and license renewal rulemaking are directed toward providing additional assurance that age-related degradation is managed for the life of a nuclear power plant, including continued operation under a renewed license.

A related aspect of an effective program is its implementation and administrative control. The licensee's integrated assessment should include a review of administrative controls to ensure that the activities to be included as part of an effective program to manage age-related degradation in a license renewal application are identified and controlled so that changes are not made that could reduce the effectiveness of

the program and so that any program modifications are adequately reviewed and approved.

(5) One commenter suggested that the equipment qualification (EQ) programs required by 10 CFR 50.49 should, by definition, be considered effective programs. While some components in this program are routinely replaced, such as those that are considered consumables, EQ programs cannot be considered to be effective programs without a determination that the age-related degradation applicable to the SSCs in the program will be adequately managed after the current operating term. Further, many components in EQ programs are pre-aged prior to testing. If the pre-aging is limited to 40 years, the subsequent qualification testing demonstrates qualification for 40 years and not throughout the renewal term. In some instances, it may be necessary to perform additional qualification testing. In some instances, pre-aging was not conducted for components included in EQ programs. It should not be assumed that these components are qualified beyond the 40 years of the initial operating license, and additional testing or analysis or both may be necessary to determine whether these components can be demonstrated to meet the requirements of 10 CFR 50.49 during the renewal term.

(6) A commenter wanted the rule to specifically state that a periodic replacement schedule is acceptable as an (established) effective program, and therefore components that are routinely replaced may be excluded from further review. The integrated plant assessment has been revised and, as discussed previously, a definition of age-related degradation unique to license renewal has been added to the final rule. As a result of these changes, a licensee may, after evaluation of an SSC and its associated age-related degradation mechanisms, conclude that an SSC is not subject to age-related degradation unique to license renewal. A routine replacement schedule may be a consideration in reaching such a conclusion. Similarly, if after evaluating an SSC and potential age-related degradation mechanisms, a licensee may determine that the SSC is subject to age-related degradation that is unique to the license renewal term. A routine replacement schedule may be a primary aspect of an effective program to manage age-related degradation. However, the Commission does not believe that it can make a generic determination at this time with respect to the acceptability of all periodic replacement schedules. Draft Regulatory

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Guide DG-1009 provides guidelines proposed by the staff for evaluating the effectiveness of replacement programs for managing aging structures and components after the initial operating term.

Several concerns were raised by commenters that the 10 CFR part 54 rule appeared to apply only at the time of license renewal and then the special programs initiated because of age-related degradation would become fixed in time with no further modification or improvement. This was never the Commission's intent. To clarify the Commission intent, three new paragraphs have been added to the part 54 rule: One paragraph in § 54.33 and two paragraphs in § 54.37.

Section 54.33 has been modified to state that the licensee may not make changes to programs or procedures approved by the staff to manage age-related degradation that decrease the effectiveness of these programs without prior Commission approval. Changes to these programs that do not decrease their effectiveness can be made without prior Commission approval.

Section 54.37 has been modified to add two new requirements. The first is that the annual update of the FSAR required by 10 CFR 50.71(e) is to include any SSCs that should be added to or deleted from the programs to manage age-related degradation. Thus, the list of SSCs important to license renewal must be updated at least annually. Second, if the licensee makes changes to the age-related degradation management programs that do not require prior Commission approval (in accordance with the new provision of § 54.33), then at least annually the licensee must submit the changes to the Commission. This provision is similar to the requirement to notify the Commission of programmatic changes that is presently contained in the Commission regulations governing the emergency preparedness, physical security, and quality assurance programs. However, because the degradation management programs are a principal focus of the license renewal rule, the Commission desires to be notified of changes in these programs; therefore, a separate report of program changes is necessary, and a reporting requirement has been added to the rule.

(vi) Scope of Subjects for Management of Time-Related Changes

In the proposed rule published on July 17, 1990, the Commission particularly solicited comments on three specific questions in Section V. Questions (55 FR 29055).

The first two questions pertained to the scope of requirements with respect to management of age-related degradation and possible other time-related changes. The third question pertained to certain technical issues with respect to which requirements have been established, but some work on implementation remains to be completed.

(1) Question 1 reads as follows:

Are there any specific equipment items, equipment categories, or topics that should be excluded from review under the age-related degradation management program requirements of the proposed rule? If so, what equipment or topics should be excluded and what would be the justification for such exclusion?

Several comments addressing Question 1 were received. The scope of the comments ranged from including in the review only items that are specifically focused on age-related degradation to not excluding any equipment or topics.

One commenter stated that all programmatic issues that do not involve age-related degradation, such as quality assurance, technical qualifications, and management competence, should be excluded from review. The Commission agrees that programmatic issues that do not involve age-related degradation should not be rereviewed in connection with a license renewal application. Therefore, the final rule does not require a finding of continuing licensee compliance with programmatic requirements such as emergency preparedness, physical security, and quality assurance. However, if a licensee chooses to rely upon a programmatic activity or portion thereof to demonstrate that it has an effective program to address age-related degradation unique to license renewal, the adequacy of the referenced portion of the programmatic activity could be reviewed by the NRC to determine whether it is acceptable to address this degradation.

Commenters also stated that anything that is important to license renewal should not be excluded from review. Several of these commenters did feel, however, that a more narrow definition of the integrated plant assessment (IPA) process should be provided. Another commenter stated that everything ages and should be reviewed and specifically included design, construction, operational history, QA/QC, waste management, and human factors considerations. With regard to the first point, the NRC agrees that the IPA should be a tiering process. The current version of the rule supports this approach. The specific issues related to

the IPA are discussed in greater detail in section IV.e.(iii) of this document and will not be repeated here.

With regard to the second point, the staff agrees that many things change with time and must be dealt with on a continuing basis, whether it be in the first 40 years of operation or during the renewal term. Changes in the activities specifically listed by the commenter that result from age-related degradation that is not unique to license renewal would be dealt with as they arose, and it is not necessary to readdress the issues specifically or license renewal.

No additional topics or equipment have been specifically excluded from the rule as a result of the comments received.

(2) Question 2 reads as follows:

Should any equipment items, equipment categories, or topics (including topics related to the site, such as nearby hazards or demography) that may involve changes over time be added to the review requirements under the proposed rule? If so, what equipment items, equipment categories, or topics should be added and what would be the justification for such addition?

The NRC received comments addressing Question 2. The scope of these comments included a request for the inclusion of specific siting topics, emergency planning issues, and a plant-specific site area cancer study. A more detailed discussion of the comments and issues raised follows.

One commenter stated that, although no equipment should be added, several topics should be considered for addition and specifically recommended biofouling and geological setting (erosion or sediment deposition, new or reactivated faults, volcanic activity). Biofouling and erosion are covered in the regulatory guide and standard review plan being developed to support the rule. New or reactivated faults, volcanic activity, and sediment deposition are examples of the types of issues that would normally be addressed as a part of the ongoing regulatory process described in Section IV.b above and therefore need not be considered as part of the renewal review. For example, when the eruption of Mount Saint Helens occurred, questions were raised concerning the level of safety at potentially affected nuclear power plants such as Trojan. Immediate NRC attention was directed to these plants to investigate potential issues such as excessive silting. When a seismic fault was discovered near Diablo Canyon, the NRC evaluated the potential effects of that fault on the operation of Diablo Canyon. Each of these efforts are examples of actions initiated as part of the current regulatory

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programs that include significant environmental issues. Nevertheless, it is possible that some issues could be critical only to the operation during the renewal license term and therefore would not be addressed in ongoing regulatory processes directed at ensuring adequate protection during the initial license term. These issues could be addressed for renewals on a case-by-case basis under revised 10 CFR 2.758.

One commenter opposed the removal of emergency preparedness planning from license renewal consideration, while another stated that all site topics (which are essentially related to emergency preparedness) should be excluded from the license renewal proceeding because they do not contain SSCs subject to age-related degradation. The issues related to the exclusion of emergency preparedness are discussed in greater detail in Section IV.s of this document.

One commenter suggested the following topics should be considered: population changes, transportation and traffic factors, location of nearby hazards, global warming, political and sociological changes and instabilities, external technological advances, national economic conditions, and understanding of the health effects of environmental pollutants. Effects of population changes, transportation and traffic factors, and location of nearby hazards are topics that can be addressed through a variety of processes. Commission regulations require that emergency preparedness plans be updated to account for changes in population or other factors around a plant site. Further, the Commission also requires, through the annual FSAR updating process, that licensees update existing analyses of nearby hazards to the plant. In addition, the Commission has a resident inspector at each reactor site. The resident inspector has knowledge of and access to the local media and therefore can be informed of potential changes in the environment surrounding the site that could affect plant safety. However, the Commission acknowledges that the existing processes in this area are not as disciplined as other areas of regulatory oversight in some of the areas mentioned by the commenter. The Commission is in the process of revising the guidance and inspection activities to implement a more disciplined process that would provide additional assurance that plants continue to operate within their current licensing basis. The Commission is considering global warming, national and local social and economic conditions, and environmental

pollutants where pertinent to the environmental protection aspects of license renewal that are required to be discussed under the requirements of 10 CFR part 51 to support license renewal.

One commenter stated that, despite a recently released National Cancer Institute study on cancer around nuclear power facilities (which basically concluded that the facilities were not a significant contributor to local cancer deaths), a site-specific study concerning deaths in the community due to cancer must be conducted as part of license renewal. The commenter goes on to state that a study done at the 40-year point should provide valuable data. The staff has concluded that there appears to be no justification to require a site-specific study at every site for license renewal.

In summary, the Commission did not add any equipment items, equipment categories, or topics to the rule as a result of the comments received.

(3) Question 3 reads as follows:

For certain limited technical issues with respect to which requirements have been established, some work on implementation and compliance remains to be completed. Unimplemented USIs, such as Station Blackout and Anticipated Transients Without Scram, GSIs, and the "lessons learned" issues of the Systematic Evaluation Program are examples. Is there a basis for removal of such issues at this time from the provision of § 54.29 of the proposed rule that the findings under 10 CFR 50.57(a) need not be made in order to issue a renewed license? If so, what would that basis be?

The public responses and comments that addressed this question covered a wide spectrum of opinions.

One commenter concluded that work on all issues that pertain to reactor operation should be completed and implemented before a renewed license is issued and that these issues should be included in the license renewal rule. Another commenter presented a different view and noted that many of the issues identified in the proposed rule are already being reviewed by the NRC and that inclusion of these issues in the license renewal rule was contrary to the stated goal of limiting renewal activities to age-related degradation. Other comments addressed the need to reassess any cost-benefit analysis that resulted in not requiring a backfit analysis based on an assumption that plant operation would be limited to 40 years.

Based upon the comments summarized above and other comments related to these issues, and upon the staff's review of the technical aspects, resolution, and implementation status of these issues, the Commission concludes

that the existing processes that are currently addressing these unresolved and/or unimplemented GSIs, USIs, and the 22 SEP lessons learned issues are sufficient. These regulatory processes, which are described and discussed in sections IV.a and b of this document and in NUREG-1412, have proved effective in resolving similar issues in the past, and there is no reason to believe that they will not adequately resolve these issues in the future. Should any new GSIs or USIs be identified in the future, these same regulatory processes would also provide assurance that concerns with respect to adequate protection are addressed in a timely manner. In addition, none of the currently identified unresolved or unimplemented USIs, GSIs, and SEP lessons learned issues is known to involve age-related degradation concerns uniquely relevant to the extended period of operation under a renewed operating license. There is no necessary and unique connection between these issues and license renewal. Should any GSIs, or USIs be identified in the future that do, in fact, implicate age-related degradation unique to license renewal, the applicant would be required to address the matter and the NRC would be required to make a finding with respect to that matter under the age-related degradation requirements of 10 CFR part 54. For these reasons, the Commission concludes that the NRC's renewal decision should not be based, either in whole or part, upon the resolution and implementation of GSIs, USIs, or SEP lessons learned issues. Therefore, § 54.29 does not require separate findings with respect to any GSIs, USIs, or the SEP lessons learned issues as a prerequisite to issuing a renewed license under 10 CFR part 54.

The staff has reviewed resolved GSIs for which new requirements were not required to be backfitted to determine whether the additional years of plant operation would result in a different conclusion. This review is discussed in Section IV.b.(iii) of this document.

f. Renewal Finding and Hearing Scope

In view of the principles of license renewal discussed above, the Commission concludes that the decision to issue a renewed operating license need not involve a licensing review of the adequacy of or compliance with a plant's licensing basis. Rather, the NRC's decision should normally be limited to whether actions have been identified and have been or will be taken to address age-related degradation unique to license renewal and whether the relevant National

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Environmental Policy Act (NEPA) requirements, as set forth in 10 CFR part 51, have been met.

The Commission's conclusion that the decision whether to issue a renewed license will be limited to consideration of age-related degradation unique to license renewal and compliance with NEPA is consistent with the AEA. Section 103.c of the AEA indicates that licenses for nuclear power plants may be issued and, upon expiration, may be renewed.

The AEA does not provide guidance with respect to the nature and scope of the "not inimical" standard (or its somewhat more familiar statutory equivalent in section 182.a—the "adequate protection" standard) as applied to renewals. It is the Commission's view that the AEA does not mandate the same scope of review for both initial and renewed licenses.

The 40-year license term in section 103.c, which necessitates license renewal, was adopted for antitrust and financial reasons rather than safety or common defense and security reasons. (This is further discussed in section IV.g.) Moreover, unlike section 103 licenses, the Congress imposed no statutory limitation on the term of section 104.b licenses. Since there is no safety difference between the two types of licenses, this suggests strongly that Congress saw no special safety or common defense and security significance to the renewing of a license that would require a statutorily mandated scope of review similar to that for issuance of an initial license. Second, as the courts have noted repeatedly, the NRC has been given broad discretion in the AEA with respect to structuring its regulatory proceedings. See *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1446 (D.C. Cir. 1984), *Carstens v. NRC*, 742 F.2d 1546 (D.C. Cir. 1984). The failure of Congress to provide any criteria in the AEA explaining the bounds of the "not inimical" standard for renewals suggests that Congress intended the NRC to have substantial discretion in tailoring the scope of its licensing review to the circumstance and type of regulatory action.

Section 50.57 does not distinguish between the issuance of initial versus renewed operating licenses. However, the absence of such a distinction from § 50.57 cannot be reasonably viewed as indicative of a prior Commission view that the statutory "not inimical" standard mandates an identical scope of review in both initial and renewal licensing. Prior to 1960, the Commission did not have any section of findings for

issuance of operating licenses similar to § 50.57. Rather, there was simply a provision that permitted conversion of construction permits to operating licenses (now 10 CFR 50.56). Section 50.57 was adopted for:

Procedures and criteria for the issuance of provisional operating licenses in order to permit orderly and expeditious transition from a construction permit to an operating license where (a) the evidence will not support a finding of completion of construction in compliance with the terms and conditions of the construction permit, or (b) there are involved features, characteristics, or components of a proposed facility as to which it appears desirable to obtain actual or further operating experience before issuance of an operating license for the full term, up to forty years, requested by the applicant. 25 FR 8712 (September 9, 1960); c.f. 25 FR 1225 (February 11, 1960) (proposed rule).

Clearly, the Commission had in mind initial licensing and did not consider the issue of the scope of the statutory finding with respect to issuance of renewed licenses.

In sum, the Commission's authority to issue a renewed license is governed by the "not inimical" standard of section 103.d. However, the Commission concludes that under the AEA it may determine a scope of review in a license renewal proceeding that is more limited than the scope of review for initial licensing, based upon two aspects of the NRC's regulatory process. The first is the scope and effectiveness of the NRC's past and ongoing regulation of operating reactors to ensure that operation throughout the initial license term will not be inimical to public health and safety by modifying plants' licensing bases when necessary in light of new information and issues and ensuring compliance with licensing bases. The second is the NRC's regulatory actions to ensure that new circumstances are not inimical to the common defense and security. Taking these factors into account, the Commission concludes that the discipline of a formal license renewal review and finding is not needed except for issues that, because they are relevant to adequate protection only for extended operation beyond the initial license term, are not currently considering in ongoing regulatory processes. Only one issue falls in this category that would be generally applicable to all plants—age-related degradation unique to license renewal.

The final rule is carefully structured to establish a regulatory process that is precisely directed at age-related degradation unique to license renewal. Sections 54.19, 54.21, 54.22, and 54.23, which specify the information that must be submitted in a renewal application,

require only information regarding administrative matters, age-related degradation unique to license renewal, technical specification changes, and environmental impact. The rule does not require submission of information relating to the adequacy of, or compliance with, the current licensing basis. Section 54.29, which defines the standard for issuance of a renewed license, does not require a finding regarding the adequacy of, or compliance with, the plant's licensing basis. The section clearly sets forth the findings that must be made in order to issue a renewed license. The Commission's procedure for rule challenges, 10 CFR 2.758, has been amended to permit certain other issues unique to license renewal to be addressed formally on a case-by-case basis.

Hearings on individual license renewal proceedings with some exceptions will be limited to contentions questioning the adequacy of the Commission's findings made pursuant to § 54.29. Section 189.a, the only potentially applicable provision in the AEA relating to hearings, does not by its terms apply to renewals of licenses although it clearly applies to the initial granting or amendment of licenses. This is not surprising, given that the Congress did not require any renewals and apparently contemplated unlimited license terms for a whole category of nuclear power plants—those licensed under section 104.b. Therefore, the holding of any hearing in connection with a license renewal is a matter of Commission discretion. Nevertheless, the Commission has decided that hearings should be held, if requested. Only contentions that question (1) whether the applicant has properly complied with the 10 CFR part 54 requirements and thereby adequately addressed age-related degradation unique to license renewal, or (2) whether the applicable requirements of 10 CFR part 51 relating to environmental protection under NEPA have been satisfied will normally be admitted to a formal hearing.

However, the final rule amends § 2.758 to also make clear that challenges to the 10 CFR part 54 rule could be made in the formal hearing so that certain other issues claimed to be necessary to ensure adequate protection only during the renewal term could be admitted in a formal hearing on a case-by-case basis, but only at the direction of the Commission itself. Issues that have relevance and could be completely resolved during the term of operation under the existing operating license as well as license renewal would not be

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admissible under the new provision of § 2.758 because there is no unique relevance of the issue to the renewal term. In addition, hypothetical or speculative projections that a situation could occur during the renewal term would not be a basis for admission of an issue under the new provisions of § 2.758. On the other hand, if an intervenor could make a *prima facie* demonstration that an issue or circumstance would occur during the renewal term and not during the existing operating license term, and that its resolution is necessary to ensure adequate protection, the Commission would admit that issue for resolution in the formal renewal hearing, as provided, in § 54.29(c).

g. Nature of License

An issue that the Commission identified early in this rulemaking is whether extended operation (i.e., operation beyond that approved in the current license) could be accomplished either through issuing a "renewed" operating license or by amending the expiration date in the current license to permit operation beyond 40 years.

After reviewing the AEA, the relevant legislative history, and the licensing regimes for other Federal agencies, including the Federal Communications Commission, the Commission concludes that extended operation of nuclear power plants licensed under section 103 of the AEA must be accomplished by issuance of renewed operating licenses. The Commission further concludes that extended operation of nuclear power plants licensed under section 104 of the AEA² should also be accomplished through issuance of renewed operating licenses.

Section 103.c of the AEA states:

Each (Section 103) license shall be issued for a specified period, as determined by the Commission, depending on the type of activity to be licensed, but not exceeding forty years, and may be renewed upon expiration of such period.

Based upon the explicit statutory prohibition of license terms in excess of 40 years, together with the statutory provision for renewal, the Commission concludes that the term of a section 103

license may not be extended beyond 40 years by amendment. One commenter argues that Section 103.c "only prohibits issuing a license for more than forty years," but does not prohibit amending the license once issued to extend the term beyond 40 years. The Commission does not believe this is a fair reading of the statute. Under the commenter's view, the NRC could issue a license with a 40-year term limitation and a day later amend the license to specify a 100-year term. Clearly, this is not what Congress intended. The Commission also rejects the view that the 40-year limitation in section 103.c was only intended to prohibit open-ended or perpetual licenses. If Congress had only intended to prohibit perpetual licenses, it would have been sufficient to state in section 103.c that licenses "shall be issued for a specified period." That Congress included a 40-year limit in section 103.c as an additional limiting clause indicates that the opposite was true, *viz.*, that Congress intended a license to have a life of no more than 40 years. The commenter's view also fails to explain why Congress chose to speak of a license as being "renewed upon (its) expiration," rather than simply indicating that licenses may subsequently be amended to extend the term of the license. Most importantly, the legislative history belies the claim that the 40-year term was adopted merely to limit perpetual licenses. In fact, the limit was a compromise between the efforts of the Justice Department and electric cooperatives, who championed a 20-year limit on the basis of antitrust concerns, and the view of the utility industries that a longer period was necessary to ensure full amortization of a nuclear power plant. See, e.g., Hearings Before the Joint Comm. on Atomic Energy, 83rd Cong., 2nd Sess. (1954) at 711 (statement of Assistant Attorney General J. Lee Rankin), 444 (testimony of Jerry Voorhis, Executive Director, Cooperative League of the U.S.), 306-307 (testimony of Clyde T. Ellis, Executive Manager, National Rural Electric Cooperative Association), 227 (statement of E.H. Dixon, Chairman, Atomic Power Committee, Edison Electric Institute), 711 (colloquy of Rep. Holifield).

A law firm representing a group of utilities argues that license renewal should be accomplished by amendment because Price-Anderson Act coverage may not extend to renewed licenses. For the reasons set forth in section IV.x, the Commission concludes that renewed licenses are afforded Price-Anderson Act coverage throughout the renewal term.

Section 104.b does not contain any limit on the term of operating licenses for nuclear power plants licensed as research and development facilities, although the Commission as a matter of practice limited section 104.b operating licenses to 40 years. Despite any explicit prohibition on the term of section 104.b licenses, the Commission has decided that extended operation of nuclear power plants licensed under section 104.b should also be accomplished through the issuance of renewed licenses. From the point of view of regulatory stability and consistency, it is simpler to have one process and one set of regulations governing license renewal for all nuclear power plants. For all practical purposes, there is little technical distinction between the class of nuclear power plants licensed under section 103 and the class licensed under section 104.b. Only the 1970 change in the AEA separates these two classes of plants. Accordingly, 10 CFR part 54 makes no distinction between section 103 and section 104.b nuclear power plants. Nonpower reactors, including research and test reactors, on the other hand, differ as a class from nuclear power plants; they are not covered by 10 CFR part 54.

In sum, the Commission concludes that extended operation of section 103 and section 104.b nuclear power plants beyond the term of their current operating licenses should be achieved through issuance of renewed licenses, rather than through amendment of the existing operating license's specified term. The Commission wishes to emphasize that the form of license with respect to extended operation does *not* affect the substantive issues raised by extended operation, *viz.*, whether and under what conditions and restrictions should a nuclear power plant be allowed to operate beyond the term of its existing operating license. Whether extended life is accomplished by amendment of the existing operating license or by issuance of a new license, the standard of Sections 103.d and 104 of the AEA must be met, *viz.* that extended operation will not be inimical to the public health and safety and common defense and security. Additionally, as discussed in the following section, the licensee-applicant for a renewed license is entitled to favorable treatment under the Timely Renewal Doctrine of the Administrative Procedure Act and 10 CFR 2.109. This treatment may not be available to an applicant for a license amendment.

² Until 1970, nuclear power plants were licensed as "research and development facilities" under section 104.b of the AEA, since the Atomic Energy Commission (AEC) did not make a "practical value" finding for any nuclear power design. Such a finding was a necessary prerequisite for issuing an operating license under the originally enacted version of section 103. In 1970, the AEA was amended to remove the "practical value" finding and to require that all commercial nuclear power plants whose construction permits were filed after 1970 be licensed under section 103.

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h. Latest Date for Filing Renewal Application, the Timely Renewal Doctrine, and Sufficiency of Renewal Application

Section 9(b) of the Administrative Procedure Act (APA), referred to as the "timely renewal doctrine," provides that, if a licensee of an activity of a continuing nature makes a "timely and sufficient" application for renewal in accordance with agency rules, the existing license does not expire until the application has been finally determined by the agency. The timely renewal doctrine is embodied in the Commission's regulations at 10 CFR 2.109:

If, at least thirty (30) days prior to the expiration of an existing license authorizing any activity of a continuing nature, a licensee files an application for a renewal or for a new license for the activity so authorized, the existing license will not be deemed to have expired until the application has been finally determined.

The Commission believes that the 30-day deadline for timely renewal currently contained in § 2.109 would not provide the NRC a reasonable time to review an application for a renewed operating license for a nuclear power plant. Because the review of a renewal application will involve a review of many complex technical issues, the NRC estimates that the technical review would take approximately 2 years. Any necessary hearing could likely add an additional year or more. Therefore, in the proposed rule, the Commission modified § 2.109 to require that nuclear power plant operating license renewal applications be submitted at least 3 years prior to their expiration in order to take advantage of the timely renewal doctrine.

No specific comment was received concerning the proposal to add a 3-year provision for the timely renewal provision for license renewal. The current regulations require licensees to submit decommissioning plans and related financial assurance information on or about 5 years prior to the expiration of their operating licenses. The Commission has concluded that, for consistency, the deadline for the submittal of a license renewal application should be 5 years prior to the expiration of the current operating license. The timely renewal provisions of § 2.109 now reflect the decision that a 5-year time limit is more appropriate.

Renewal applications should be essentially complete and sufficient when filed. Section 9(b) of the APA confers the benefit of "timely renewal" to those who make a timely filing of a "sufficient

application." Although the current wording of the Commission's parallel rule in § 2.109 only refers to the timely filing of an "application for a renewal or for a new license * * *," Commission practice has been to ensure that sufficient applications have been submitted. In the proposed rule the Commission added § 2.109(b) to incorporate the APA's provision requiring the submittal of a sufficient application. Other considerations lead the Commission to incorporate the specific language into § 2.109(b). The Commission discourages the filing of pro-forma renewal applications that would be filed simply for the sake of meeting the 10 CFR 2.109(b) deadline. However, a determination that an application is sufficient for purposes of timely renewal would not be litigable. Sufficiency is essentially a matter for the staff to determine based on the required contents of an application established in §§ 54.19, 54.21, 54.22, and 54.23. It is enough that the licensee submits the required reports, analyses, and other documents required in such application. That such documents may require further supplementation or review is of no consequence to continued operation under timely renewal.

In December 1990, the NRC issued Draft Regulatory Guide DG-1009, "Standard Format and Content of Technical Information for Applications to Renew Nuclear Power Plant Operating Licenses," and a draft standard review plan for license renewal (SRP-LR) (NUREG-1299) (55 FR 50065). These documents provide more specific guidance for preparing a renewal application and for judging whether the criterion of a sufficient application is met.

One commenter was concerned about the potential for abuse of the timely renewal provisions of the regulations. The Commission has concluded that the specific language of §§ 54.19, 54.21, 54.22, and 54.23 in combination with the specific guidance published in regulatory guidance documents should preclude the concerns raised regarding the potential for abuse of the Commission's timely renewal provisions.

One commenter noted that there would be substantial adverse impacts if the NRC finds that a renewal application is insufficient after the term of the current licensed period has expired. The commenter urged the NRC to make a finding of application sufficiency at least 6 months before the existing license term expires. The Commission agrees that licensees who

have filed a renewal application should be given timely notice as to whether their application is sufficient. However, no specific provision need be made in the final rule. The draft SRP-LR contains proposed staff guidance for notifying renewal applicants in a timely manner that a particular application is or is not sufficient.

i. Earliest Date for Filing Applications

Neither the AEA nor the Commission's current regulations set a limit on how long before expiration of the operating license a renewal application may be filed. The Commission has decided to impose such a limit to ensure that substantial operating experience is accumulated by a licensee before it submits a renewal application.

In the proposed rule, the Commission suggested a 20-year time limit for filing renewal applications. Several commenters argued that 20 years would not be a sufficient period of time to accumulate an adequate body of information and experience to support the agency's consideration of a renewal application. Other commenters stated that information gained from operating experience after the renewal license is granted would not be considered by the NRC. One commenter also argued that even after considering the 10-year lead time deemed necessary by utilities to plan for alternative generating capacity and a 3-year period for NRC review of a renewal application, the proposed 20-year limit is too long. The commenter proposed that a 15-year limit should be a compromise acceptable to the industry. Another commenter stated that a 20-year time limit would be an illegal expansion of the initial licensing period, in violation of the AEA, but the commenter did not explain the legal basis for this conclusion. The commenter suggested that a 5-year time limit would be reasonable.

While the Commission accepts the premise that operating experience is important, it rejects the suggestion that 20 years of operational and regulatory experience with a particular plant is an insufficient period in which to accumulate information on plant performance. A nuclear power plant will undergo a significant number of fuel cycles over 20 years, and plant and utility personnel will have a substantial number of hours of operational experience with every system, structure, and component. The NRC believes that the history of operation over the minimum 20-year period provides a licensee with substantial amounts of information and would disclose any

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plant-specific concerns with regard to age-related degradation.

Commenters incorrectly suggest that new information about plant systems and components as well as age-related degradation concerns discovered after the renewed license is issued would not be considered by the NRC or would not be factored into a plant's programs. The CLB of a plant will continue to evolve throughout the term of the renewed license to address the effects of age-related degradation as well as any other operational concern that arises. The licensee must continue to ensure that the plant is being operated safely and in conformance with its licensing basis. The NRC's regulatory oversight activities will also assess any new information on age-related degradation or plant operation issues and take whatever regulatory action is appropriate for ensuring the protection of the public health and safety. The commenters ignore the fact that both renewal applicants and the NRC will have the benefit of the operational experience from the nuclear industry and are not limited to information developed solely by the utility seeking a renewed license. For example, there are now approximately 1400 reactor years of operating experience in the U.S. nuclear power industry. This experience will increase each year. All of this experience would be considered by the NRC in evaluating the adequacy of licensee-proposed activities to address age-related degradation in connection with a renewal application.

The Commission disagrees with a commenter's proposal that a 5-year, or even a 15-year, time limit for filing renewal applications will be adequate. In proposing the earliest date of application, the Commission considered the time necessary for utilities to plan for replacement of retired nuclear plants. Industry studies estimate that the lead time to build a new electric generation plant is 10 to 12 years for fossil fuels and 12 to 14 years for nuclear or other new technologies. When the staff review is factored into the decision process, the Commission concludes that applications 18 to 20 years before expiration of a license are not unreasonable. For these reasons, the final rule permits the application for a renewed license to be filed 20 years before expiration of an existing operating license.

j. Withdrawal of Application

A new § 54.34 has been proposed by a commenter to permit an applicant for a renewed operating license to withdraw its application at any time during the

proceeding. The Commission does not believe that such a provision is necessary in part 54. Currently, applicants for any NRC license, including a nuclear power plant operating license under 10 CFR part 50, may withdraw their applications at any time and for any reason (subject to payment of applicable fees). This opportunity is provided despite the fact that there are no explicit provisions in the Commission's regulations permitting withdrawal of applications. The Commission will not treat applicants for part 54 renewed operating licenses any differently with respect to withdrawal. Accordingly, the Commission declines to adopt this proposal.

k. Renewal Term

The AEA permits the Commission to issue section 103 operating licenses with terms up to 40 years and imposes no limit on section 104.b operating licenses. Nonetheless, the Commission has decided to limit the maximum period of extended operation under the renewed license to 20 years beyond the expiration of the existing (previous) operating license. The Commission believes that sufficient technical understanding of age-related degradation exists to enable nuclear power plant licensees to develop activities for ensuring safe operation of their plants for an additional 20 years beyond expiration of existing licenses. However, a 20-year limit on extended operation will, in the Commission's judgment, provide a useful opportunity to validate and reassess, if necessary, the current understanding of age-related degradation effects. As one commenter suggests, the Commission may revisit this issue in the future as experience with licensee performance in managing age-related degradation during the renewal term is gained. If the Commission has sufficient confidence in the adequacy of licensee programs to detect and resolve in a timely manner any unforeseen age-related degradation, the 20-year limit may be removed. However, reappraisal of the use of supersession licensing will be required at that time. The Commission therefore rejects a commenter's suggestion that the renewed licenses should be granted for terms in excess of 20 years.

There is no minimum term for a renewed license that may be requested by an applicant. The primary reason for such a limitation would be to discourage repetitive renewal periods for relatively short periods, which may consume an unwarranted amount of staff resources to review, as well as have the potential for abuse. Upon consideration, the Commission believes that the renewal

applicant's need for longer-term planning of its electric power generating capacity and the cost of preparing and supporting each renewal application will ordinarily serve to motivate the applicant to seek longer renewal terms.

1. Effective Date of Renewed License

Two alternatives were identified early by the Commission with respect to the effective date of a renewed license: (1) A "tack-on" license that takes effect at the expiration of the current operating license, and (2) a "supersession" license that takes effect immediately upon NRC approval of the renewal application. The tack-on approach is initially attractive, since, in general, renewals of licenses take effect upon expiration of the existing license. Moreover, it may be argued that "tack-on" licensing was contemplated by Congress, since section 103.c of the AEA states that licenses "may be renewed upon the expiration of (the specified license term)." However, as a consequence of accommodating the utilities' asserted need for an early agency decision on renewal applications, a potentially long period may occur between the agency decision to approve a renewal application and the expiration date of the original operating license. If issuance of the renewed license were kept in abeyance for such an extended period, there would be a great deal of uncertainty in terms of the administrative finality of the renewal decision. As for the "upon expiration" language of section 103.c, the Commission does not believe that Congress intended by that language to preclude supersession licenses. Since section 103.c provides for licenses to be issued for a "specified period," it would be natural to speak of renewal following the "expiration of such period." On balance, the Commission has determined that a renewed license should be in the form of a supersession of the existing operating license.

One commenter suggested that the supersession approach to licensing may lead to "logistical issues" such as duplicate submittals since there will be co-existing dockets for the existing operating license and the renewal application. The Commission recognized that this would be an issue and had included a provision in the proposed rule that fixed the CLB for the duration of the renewal application to avoid these types of coordination problems. The final rule does not freeze the CLB; instead, § 54.21(e) requires renewal applicants to update their renewal application to reflect changes to CLB information, which materially affects the contents of the renewal application. This requirement will ensure that the

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licensing basis for the existing operating license remains current and is reflected in a timely manner in the renewal license application.

Two commenters suggested that the proposed rule be modified to make clear that a supersession license is issued only after the renewal application has been finally determined and all administrative and judicial appeals are exhausted. In their view, this modification is necessary because § 54.31 stated that the initial operating license is "entirely ineffective and superseded" upon issuance of the renewed license and may be interpreted to leave a facility without an effective license if its renewed license were set aside upon appeal. The Commission never intended § 54.31(c) to suggest that if a renewed license were somehow set aside upon appeal, the licensee could not continue operating under its previous operating license. The Commission is unaware of any instance involving supersession licensing where such a result occurred. Even if the concern is valid, the commenters' proposed solution is undesirable. NRC's nuclear power plant licensing actions generally are immediately effective, see 10 CFR 2.764. Neither the AEA, the Administrative Procedure Act, nor any precept of administrative law compels the NRC to await exhaustion of judicial appeals before it may issue a license. In order to preclude any future misunderstandings in this regard, § 54.31(c) has been modified by deleting the words, "entirely ineffective," and adding a sentence clarifying that the prior existing operating license shall be reinstated if the renewed license is subsequently set aside, unless the term of the prior operating license is expired and the renewal application was not filed in a timely manner.

m. Subsequent Renewals

Section 54.31(d) allows a renewed license to be further renewed upon expiration of the renewal term. One commenter suggests that an additional sentence be added to make clear that a subsequent renewal application may be submitted prior to the expiration of the previous renewal term. The Commission agrees that a subsequent renewal application may be submitted prior to expiration of the previous renewal term (under § 54.17(c), up to 20 years prior to that expiration). However, § 54.31(d) makes clear that a renewed license may be further renewed in accordance with "applicable requirements," which would include the provisions of part 54 (unless the Commission subsequently adopts special provisions applicable only to

subsequent renewals). Under this circumstance, a sentence in § 54.17(d) explicitly addressing the subject may inadvertently give the impression that the "applicable requirements" language was intended to have an entirely different effect. Accordingly, the Commission declines to adopt the commenter's proposed addition.

Another commenter observed that the concept of subsequent renewals is not developed in the supporting documentation for the proposed rule. The Commission does not believe that further exposition of this concept is necessary at this time. If experience with renewals discloses a previously unknown aging or other time-dependent issue, appropriate regulatory action, including modifying the requirements for obtaining subsequent renewals, can be implemented. Further discussions of the concept are not likely to be fruitful at this time.

n. Content of Application—Technical Information

The rule identifies specific requirements for the content of a renewal application. Unless updated, the information submitted in the previous operating license docket continues to apply and is incorporated into both the renewal license application and the renewed license docket under the provisions of §§ 54.19 and 54.33. In addition, the rule (§ 54.21) requires the submittal of the following technical information:

(1) An integrated plant assessment (IPA) that demonstrates, through a step-by-step process specified in the rule (§ 54.21(a)), that the facility's systems, structures, and components important to license renewal have been identified and evaluated, and that age-related degradation unique to license renewal will be managed to ensure that the facility's licensing basis will be maintained during the renewal term. The IPA is discussed above in section IV.e.(iii).

(2) Identification and justification of any changes in the CLB necessary to address age-related degradation unique to license renewal of SSCs important to license renewal. This requirement is discussed above in section IV.d.(ii).

(3) A listing of all exemptions and reliefs granted and in effect under the existing license in the license renewal application. Any exemption or relief that was granted on the basis of remaining plant life or that otherwise relates to SSCs subject to age-related degradation unique to license renewal must be rejustified before it will be granted for the renewal term. A commenter on the proposed rule argued that the staff does

not need a complete list of all exemptions and reliefs in effect but only needs a list of those exemptions that contain time-dependent functions. The Commission does not agree. A complete list of all exemptions and reliefs granted and in effect is necessary for several reasons. First, it allows the Commission to make an independent assessment that all exemptions and reliefs have been evaluated as part of the license renewal review process. Second, the list is a summary of the instances in the licensing basis for the renewal term where the staff has determined that strict compliance with existing regulatory requirements is not needed to ensure that public health and safety is adequately protected.

(4) A description of any plant modifications or administrative procedure changes required for effective management of age-related degradation unique to license renewal, as justified by the assessments under paragraphs (2) and (3) of this section.

(5) Changes during review of the renewal application (§ 54.21(e)).

o. Environmental Information

A license renewal applicant is required to submit an environmental report, or supplement to its existing environmental report, addressing the environmental consequences of the renewal sought.

In a separate rulemaking, the NRC is developing changes to its environmental protection rules (10 CFR part 51) to assess the environmental impacts that may result from the renewal of an operating license and to codify any generic findings so that they may be adopted in future individual plant license renewal environmental reviews. The proposed rule was published in the **Federal Register** on September 17, 1991 (56 FR 47016). A generic environmental impact statement (GEIS) was prepared as the basic informational and analytical document supporting the proposed rule change. The GEIS scope includes known environmental issues that may be of reasonable concern in renewing the operating license of any of the current population of nuclear power plants. The scope reflects activities, including potential plant refurbishment associated with license renewal, an additional 20 years of operation, and possible changes in the environmental setting of the plants. The GEIS study attempts to bound the full range of plants and sites in order that a generic conclusion will be applicable to as large a number of plants as possible. Guidance on the submission of environmental information and analyses by applicants and on review criteria for

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the staff is also being prepared. In developing the GEIS, the NRC has followed the general requirements specified in 10 CFR part 51.

p. Backfit Considerations

In the proposed rule, the Commission indicated that a special provision addressing backfitting requirements during the review of a renewed license application was not necessary. Instead, the Commission discussed how backfitting would be controlled during the renewal review. The Commission also indicated that once a renewed license was issued, the normal backfitting requirements of 10 CFR 50.109 would apply to NRC-imposed changes to the renewed license's current licensing basis.

Most of the utility commenters were dissatisfied with the Commission's proposal not to include a specific provision in 10 CFR part 54 addressing the imposition of "backfits" during the review of the renewed license application. In general, these industry commenters indicate that, while they agree with the discussion in the proposed rule describing how the backfit rule would apply in the context of license renewal, the Preamble to the proposed rule was not legally binding on the Commission and staff and only a rule would be binding and enforceable against the staff. A commenter stated that backfit analyses are not appropriate to staff-imposed changes needed to address age-related degradation where degradation is significant and the equipment is important to license renewal and not covered by an existing effective program. In the commenter's view, however, the "agreement evaporates" because the proposed license renewal rule did not specify a "focused integrated plant assessment similar to the NUMARC methodology" (NUMARC Report Number 90-11, "Methodology to Evaluate Plant Systems, Structures, and Components," December 1990) and did not unreservedly accept the adequacy of the CLB as a standard for license renewal. The utilities also argue that, where there are two or more ways to satisfactorily address age-related degradation, the licensee should be free to choose the most cost-effective alternative, unless the staff determines that it is necessary or desirable to designate a specific alternative. There was some lack of agreement within the industry as to the amount of documentation that the NRC was required to generate to justify that a proposed backfit is necessary to ensure adequate protection or compliance. NUMARC's proposed rule would require

the NRC to comply with the documentation requirements of 10 CFR 50.109(a)(4). By contrast, a utility commenter states that it would be unreasonable to encumber the NRC with additional justification requirements where the backfits truly relate to adequate protection.

The Commission continues to believe that a special provision in 10 CFR part 54 that would impose backfit-style requirements on the agency is not needed. All requirements, whether or not age-related, necessary to ensure adequate protection will be required without regard to cost. This is analogous to the "adequate protection exemption" in 10 CFR 50.109(a)(4)(ii). Any additional requirements to address age-related degradation unique to license renewal that are necessary to ensure compliance with the plant's current licensing basis may be imposed without regard to cost. This is analogous to the "compliance exemption" in 10 CFR 50.109(a)(4)(i). The NRC need not prepare a separate document explaining the basis for such a conclusion. Instead, the basis for such a conclusion will normally be documented by the NRC in a safety evaluation report that presents the results of the NRC staff's review of the renewal application. The Commission rejects a commenter's proposal that these findings must be made separately from the staff's overall safety evaluation. A separate finding would be unduly burdensome and elevate form above substance since the staff's evaluation should clearly state why an action is necessary.

Once a renewed license is issued, normal backfit protections apply and all changes to the current licensing basis of the renewed license would be subject to the backfit rule in accordance with § 54.35 of the final rule.

q. Procedure for Hearings

The Commission will conduct any necessary hearings required by 10 CFR part 54 in accordance with subpart G of 10 CFR part 2. Two commenters urge that the proposed license renewal rule include a requirement that the Atomic Safety and Licensing Board be required to adopt a hearing schedule. Responding to the Commission's observation in the proposed license renewal rule's Preamble (55 FR 29052) that the timely renewal doctrine reduces the burden to the licensee stemming from protracted hearings, these commenters point out that licensees who need to have a definitive agency decision on the license renewal application 10 to 15 years prior to actual expiration will not be effectively helped by the timely renewal doctrine. The Commission recognized in

the proposed license renewal rule's Preamble that the timely renewal doctrine would not assist licensees in need of "timely contingency planning" (55 FR 29052). However, the Commission continues to believe that the new provisions in 10 CFR part 2, together with the authority of the Commission and the Atomic Safety and Licensing Board to adopt a hearing schedule in any individual license renewal hearing, obviate the need for a hearing schedule in 10 CFR part 54. The Commission further believes that incorporation of a hearing schedule with specific deadlines into either 10 CFR part 54 or 10 CFR part 2 could unnecessarily reduce the flexibility of the Licensing Board. For example, if a schedule were mandatory, deviations from the schedule may not be able to be made without a § 54.15 exemption, unless the rule sets forth the procedure and standards for deviating from the 10 CFR part 54 hearing schedule. Conversely, if the 10 CFR part 54 schedule were not binding but merely admonitory, the Commission fails to see how such a provision would add to the Commission's or Licensing Board's authority to adopt a hearing schedule.

r. Report of the Advisory Committee on Reactor Safeguards

Section 182.b of the AEA states:

The ACRS shall review each application under section 103 or section 104b. for a construction permit or an operating license for a facility, any application under section 104c. for a construction permit or an operating license for a testing facility, any application under section 104a. or c. specifically referred to it by the Commission, and any application for an amendment to a construction permit or an amendment to an operating license under section 103 or 104a., b., or c. specifically referred to it by the Commission * * *

Section 182.b does not explicitly refer to applications for renewal of an operating license as requiring ACRS review. However, The Commission believes that review by the ACRS is desirable. Accordingly, § 54.25 of the final rule requires ACRS review of a license renewal application.

s. Emergency Planning Considerations

Sections 50.47, 50.54(q), and 50.54(s) through (u) and appendix E to part 50 establish requirements and performance objectives to protect the public health and safety by ensuring the existence, implementation, revision, and maintenance of emergency preparedness programs for licensed nuclear power plants. These requirements apply to all nuclear power plant licensees and require the specified levels of protection from each licensee

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regardless of plant design, construction, or license date. Specifically, § 50.54(q) requires that a licensee maintain in effect emergency preparedness plans that meet the standard in § 50.47(b) and the requirements in appendix E to 10 CFR part 50. The requirements of § 50.47 and appendix E are independent of the renewal of the operating license, and they will continue to apply during the license renewal term.

To ensure that a licensee's plan remains adequate to protect the health and safety of the public during the term of the initial license, NRC requires, under § 50.54(t), a detailed annual review of the facility's emergency preparedness plan by persons who have no direct responsibility for its implementation. Included within the review is an evaluation of the continued adequacy of applicable and appropriate communication and working relationships with State and local governments. Under appendix E to 10 CFR part 50, licensees must also perform an annual exercise of their emergency preparedness plans and be evaluated by the NRC against definitive performance criteria. The Commission requires that these periodic exercises be performed to measure the effectiveness of the plan against some or all of the standards on an annual basis and ensures that within a 5-year period the plan is tested against all of the 16 standards. Following each of the required exercises, findings are made concerning the success of the plan and, in some cases, weak and deficient areas that require correction are identified. These processes will continue during the renewal term. In conclusion, the Commission's regulations require the routine evaluation of the effectiveness of existing emergency preparedness plans against the 16 planning standards and the modification of emergency preparedness plans when the 16 standards are not met. Through its standards and required exercises, the Commission ensures that existing plans are adequate throughout the life of any plant even in the face of changing demographics and other site-related factors. Thus, these drills, performance criteria, and independent evaluations provide a process to ensure continued adequacy of emergency preparedness in light of changes in site characteristics that may occur during the term of the existing operating license, such as transportation systems and demographics. There is no need for a licensing review of emergency planning issues in the context of license renewal.

The NRC has determined that the current requirements, including continuing update requirements for

emergency planning, provide reasonable assurance that an acceptable level of emergency preparedness exists at any operating reactor at any time in its operating lifetime. The Commission has amended 10 CFR 50.47 to clarify that no new finding on emergency preparedness will be made as part of a license renewal decision.

The Commission received a number of comments from public interest groups contending that current emergency preparedness plans are not adequate and that periodic revisions to existing emergency preparedness plans and the execution of emergency plan exercises were generally considered inadequate to keep pace with changing demographics, land use, and transportation patterns. One commenter raised the issue that the evacuation time estimates would need to be reviewed in light of the changes in demography. The issue concerning the potential inadequacy of the existing plans, exercises, or evaluation time estimates to account for such changes does not involve matters limited to the renewal of operating licenses.

In conclusion, the Commission has carefully considered the issues raised by commenters on the need to make a finding on the adequacy of existing emergency preparedness plans in order to grant a renewal license. For the reasons stated above, the Commission concludes that the adequacy of existing emergency preparedness plans need not be considered anew as part of issuing a renewed operating license.

t. Plant Physical Security Considerations

Licensees must establish and maintain a system for the physical protection of plants and materials, in accordance with 10 CFR part 73, to protect the plant from acts of radiological sabotage and prevent the theft of special nuclear material.

The NRC reviews the status of physical security measures at each individual plant during the Systematic Assessment of Licensee Performance. The NRC has also used Regulatory Effectiveness Reviews (RERs) to determine site compliance with 10 CFR 73.55 and ensure that the level of protection required by part 73 is maintained. The RER teams use NRC security personnel and members of the U.S. Army Special Forces to test plant security systems and personnel.

The requirements of 10 CFR part 73, notably the testing and maintenance requirements of 10 CFR 73.55(g), include provisions for keeping up the performance of security equipment against impairment due to age-related degradation or other causes. Once a

licensee establishes an acceptable physical protection system, changes that would decrease the effectiveness of the system cannot be made without filing an application for license amendment in accordance with 10 CFR 50.54(p)(1).

Application for a renewed license will not affect the standards for physical protection required by the NRC. The level of protection will be maintained during the renewal term in the same manner as during the original license term, since these requirements remain in effect during the renewal term by the language of § 54.35. The requirements of 10 CFR part 73 will continue to be reviewed and changed to incorporate new information, as necessary. The NRC will continue to ensure compliance of all licensees, whether operating under an original license or a renewed one, through ongoing inspections and reviews. Therefore, the Commission concludes that a review of the adequacy of existing security plans is not necessary as part of the license renewal review process.

The NRC has reviewed current requirements for physical protection and determined that they provide reasonable assurance that an adequate level of physical protection will exist at any reactor at any time in its operating lifetime.

The NRC received one comment that stated a need to reexamine, as part of the IPA, physical security plans in general and one comment that suggested a need to review security plans to enhance the level of physical security in the event that additional high-level waste will be temporarily stored on the site during the renewal term. As for the need to rereview security plans, the discussion above has indicated why an application for a renewed license will not affect the standards for physical protection required by NRC and why the currently approved physical security plans meet the existing standards for physical protection established in 10 CFR 73.55. The level of physical protection required by 10 CFR 73.55 will also remain in effect for the renewal term. Therefore, the Commission concludes that it is not necessary to rereview security plans that meet the current standards for physical protection.

As for the need for a physical security plan review for the protection of a waste storage facility, the Commission's existing regulations in 10 CFR parts 72 and 73 specify the security requirements for sites where application is made to construct additional high-level-waste storage facilities. These regulations require the staff review of additional physical security measures to ensure

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that the new waste storage facilities would be adequately protected. These regulations and requirements must be satisfied at any time when a licensee would seek to construct such a facility, whether during the initial term or during a renewal term, and the review of the physical security measures necessary for licensing any type of monitored retrievable storage facility will occur independently of any license renewal application review. The license renewal rule does not reduce or restrict staff review of the necessary changes to the physical security plans should a licensee submit a separate request to construct a waste storage facility simultaneously with a renewal application.

u. Operator Licensing Considerations

Individuals who manipulate the controls of nuclear power facilities licensed under 10 CFR part 50 and individuals who direct activities of those individuals must be licensed by the NRC. Specific criteria for obtaining a license are set forth in 10 CFR part 55, which establishes the procedures and criteria for issuing operator licenses and defines the terms and conditions under which the NRC grants, modifies, and renews these licenses. The licensing process for individual plant operators is independent of the facility licensing process, and no change to 10 CFR part 55 is necessary.

License renewal of the facility could affect operators, however, in that additional maintenance, surveillance, or equipment replacement may be necessary at some plants. Plant personnel would be informed of and trained to handle these activities through training programs. Operators are currently required to participate in periodic training programs, which cover important changes to the facility or supporting programs and procedures, and to requalify for their licenses, demonstrating this knowledge on a periodic basis. The requirements for operator knowledge set forth in 10 CFR part 55, subpart E, "Written Examinations and Operating Tests," as well as normal NRC review of plant operations, are adequate to ensure that operators are aware of any license renewal development that may affect their duties. In addition, the use of approved plant simulators for testing individual plant operators is required of all licensees and will not be affected by license renewal.

Ongoing NRC inspection and licensing efforts will verify that important license renewal developments are adequately addressed in the training of plant operators.

v. Financial Qualification Considerations

In 1984, the NRC adopted changes to §§ 50.57 and 2.104 concerning the need to perform financial qualification reviews of applicants for commercial nuclear power plant licenses (49 FR 35747; September 12, 1984). Under the revised rule, electric utilities that apply for or possess an operating license are excluded from review of their financial qualifications by the NRC during an operating license proceeding. In publishing the final rule, the Commission stated:

The Commission believes that the record of this rulemaking demonstrates generically that the rate process assures that funds needed for safe operation will be made available to regulated electric utilities. Since obtaining such assurance was the sole objective of the financial qualification rule, the Commission concludes that, other than in exceptional cases, no case-by-case litigation of the financial qualification of such applicants is warranted. (49 FR 35750)

This finding was based on a national survey submitted by the nuclear industry and the National Association of Regulatory Utility Commissioners regarding the provisions of operating funds for nuclear power plants through the rate-making process of State commissions. The study concluded, *inter alia*, that rate-making authorities had various mechanisms to ensure the availability of utility revenues sufficient to meet the costs of NRC safety requirements. More specifically, most rate-making bodies indicated that, while in specific provision was made for NRC safety requirements, rates are generally estimated to produce sufficient overall revenues to ensure sound functioning of electric power systems, including nuclear plants. Some public utility commissions indicated that their orders specifically allocate funds to meet NRC safety requirements (49 FR 35750).

The Commission believes that this finding is also true for renewed operating licenses for nuclear power plants. Therefore, the exclusions in § 50.57(a)(4) and § 2.104(c)(4) with respect to the need for financial reviews of applications for operating licenses are extended to applicants for renewal of operating licenses. The Commission concluded that the rate-making process generally provides assurance that funds needed for safe operation will be made available to regulated electric utilities. It further concluded that case-by-case litigation of the financial qualification of applicants for operating licenses is not warranted, except in exceptional cases (49 FR 35750). The Commission has no reason to believe or evidence that

shows that these findings would not also be true for the period of renewal.

The Commission received three comments on the need for financial qualification reviews. One commenter requested that financial qualification reviews be retained if circumstances change since initial licensing, while another commenter stated that financial qualification reviews should be retained to account for the extended period of operation. A third commenter suggested that applicants for license renewal be required to conduct least-cost planning for providing service at a reasonable cost.

The Commission disagrees with these comments. The commenter suggesting that financial qualification reviews be retained to address changed circumstances pointed to structural changes in the electric power industry, the rise of independent power producers, and the use of performance incentive rate regulation as the bases for its position. These reasons are not persuasive. Licensee renewal should not pose any special issues regarding financial qualifications. The commenter did not suggest that unique rate-setting principles would be applied during the renewal period, as compared with current operation. Least-cost planning is an issue that is not within the scope of the NRC's statutory authority. This issue is typically the responsibility of State public utility commissions. Therefore, least-cost planning will not be addressed by this rulemaking.

w. Decommissioning Considerations

The Commission's current requirements with respect to decommissioning assume that decommissioning is the only option following the expiration of the nuclear power plant's operation license. Five years before an operating license is to expire, the licensee is required by 10 CFR 50.54(bb) to submit written notification to the Commission for review and approval of a program for funding of the costs of management of spent fuel during the time between the expiration of the operating license and until the spent fuel is transferred to the U.S. Department of Energy for disposal in a spent fuel repository. Also 5 years prior to the "projected end of operation," the licensee is required, pursuant to 10 CFR 50.75(f), to provide a preliminary decommissioning plan, a cost estimate for implementing the plan, and any changes in funding necessary to ensure that there will be sufficient funds for decommissioning. Not later than 1 year before the license is to expire, the licensee must file an application to terminate its operating license, together

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with a detailed plan for decommissioning, in accordance with 10 CFR 50.82. If an operating license were renewed before the dates set by the related regulations, both the preliminary and final decommissioning planning requirements would be postponed until expiration of the renewed license.

In the proposed license renewal rule, the Commission suggested that licensees who filed license renewal applications should not file the reports and preliminary plans required for plants proceeding to decommissioning. More specifically, the Commission proposed postponing the submittal of the spent fuel management and the preliminary decommissioning plans, required by §§ 50.54(bb) and 50.75(f), until a final determination on the renewal application is made. The Commission also proposed a change to § 50.82 to govern the submittal of final decommissioning plans and application for termination of the operating license if a final determination is made within the last year of the license period or if a final determination is made after the license has expired and the licensee has continued operating under the timely renewal provisions of 10 CFR 2.109(b).

Upon reconsideration of the policy issues involved with the decommissioning rulemakings and in response to arguments presented by the public comments, the Commission has determined that a waiver of the spent fuel management plan and the preliminary decommissioning plan will not automatically be provided for plants seeking license renewal. The regulatory record of the decommissioning rulemaking highlights the importance of the preliminary plans in ensuring an orderly transition from operation to decommissioning. While license renewal was not considered an option at the time of the decommissioning rulemaking, the Commission has determined that, even though a plant may be seeking a renewed license, some planning for the possibility that a plant would have to decommission (i.e., the application is denied) is still appropriate. Therefore, the Commission will not implement a waiver of the requirements of both §§ 50.54(bb) and 50.75 for plants seeking a renewed license.

The Commission, however, will retain the proposed modification of § 50.82, which postpones the submittal of the final decommissioning plan until the Commission makes a final determination on the license renewal application. The final rule will amend § 50.82 such that a licensee who has filed a timely renewal application and either (1) has not yet received a final

determination on its application or (2) has been operating under the timely renewal provisions of 10 CFR 2.109(b) when the application is denied would not need to file the final decommissioning plan and application for termination of the operating license until 1 year after a final determination on the application is made.

Commenters on the proposed rule highlighted two issues related to the accumulation of funds for eventual decommissioning of the facility. One commenter suggested that the assurance of adequate funds for decommissioning should be required regardless of the license renewal status of a plant. Another commenter similarly commented that the NRC clearly state that licensees must collect decommissioning funds until a final NRC determination on license renewal is made and that the funding arrangements specified in the decommissioning rule apply to license renewal. In this rulemaking, the Commission concludes that the funding arrangements contained in the final decommissioning rule should remain in effect for license renewal. As discussed in the Statement of Considerations for the final decommissioning rule (53 FR 24018; June 27, 1988), the combination of requirements, that is (1) adequate financial responsibility early in life, (2) periodic adjustments, and (3) evaluation of specific provisions close to the time of decommissioning, will provide reasonable assurance that, at the time of permanent end of operations, sufficient funds are available to decommission the facility in a manner that protects public health and safety.

Based on the foregoing, the Commission has concluded that no waiver of the requirements of both §§ 50.54(bb) and 50.75 will be implemented by the license renewal rulemaking. The Commission recognizes that this would require a renewal applicant to evaluate decommissioning needs in a preliminary manner while a license renewal application could also be under review. However, the Commission believes that prudent planning for decommissioning is appropriate and that waiver of the requirements for preliminary decommissioning, absent a clear indication that a license will be renewed, would appear to predetermine the outcome of a renewal application. If the current decommissioning requirements are modified in the future, the Commission will reconsider the need to submit preliminary decommissioning information while a renewal applicant is under review.

The exemption process provided by § 54.15 is available to a renewal applicant who would like to seek relief from the need to submit both license renewal and decommissioning information. However, the Commission does not expect this circumstance to routinely occur. The industry's estimates and stated position are that the lead time for replacement of lost electrical power would necessitate a final NRC determination on license renewal about 10 years prior to expiration of the operating license, well in advance of the time when the preliminary decommissioning information would need to be submitted.

Some commenters expressed concern that the proposed rule, as written, would have required a licensee to submit an application for termination of its current operating license within 1 year of a denial of a renewal application. The proposed rule had the potential to require licensees with a number of operating years remaining under their 10 CFR part 50 license to request termination simply because a request for license renewal was denied. This was not the Commission's intent. Therefore, the final rule has been revised to clarify this requirement. Under the rule as revised, a licensee need only submit a request to terminate its operating license if: (1) The denial decisions obtained within 1 year of the expiration date of the license in effect, or (2) a licensee has been operating under the timely renewal provision of 10 CFR 2.109(b) and the renewal application is denied.

x. Antitrust Review

The final rule does not require antitrust review for either a section 103 or section 104.b operating license renewal application. Turning first to section 103 plants, the legislative history of section 105.c.2 reflects Congress' intent that operating license renewal applications should not normally be subject to antitrust review:

The committee recognizes that applications may be amended from time to time, that there may be applications to extend or review ³ a

³ The Commission believes this is a typographical error and that the Joint Committee meant to use the word, "renew." For one thing, replacing "review" with "renew" makes more sense by eliminating the opponent redundancy with the preceding phrase. More importantly, in the Joint Committee's report on S. 1414, the section-by-section analysis of Section 105.c is *exactly* the same as the Joint Committee's report on H.R. 18679, with one exception—the word "review" is replaced with renew. No discussion as to the reason for the difference in words appears. For these reasons, the Commission believes that the Joint Committee meant to use the word "renew" instead of "review" in the section-by-section analysis of H.R. 18679.

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license, and also that the form of the application for a construction permit may be such that, from the applicant's standpoint, it ultimately ripens into an application for an operating license. The phrases, "any license application", "an application for a license", and "any application," as used in the clarified and revised section 105.c refer to the *initial* application for a construction permit, the *initial* application for an operating license, or the *initial* application for a modification which would constitute a new or substantially different facility, as the case may be, as determined by the Commission." Joint Committee on Atomic Energy, Amending the Atomic Energy Act, H.Rep. No. 1470, 91st Cong., 2d Sess. 29 (1970); S.Rep. No. 1247, 91st Cong., 2d Sess. 29 (1970) (emphasis added).

Therefore, unless the operating license renewal application constitutes an "initial application," or an initial application for a "new or substantially different facility," the AEA does not require an antitrust review in connection with the renewal application.

The Joint Committee report did not explain what modifications would constitute a "new or substantially different facility." However, guidance on what constitutes these types of modifications may be derived from section 185 of the AEA, which requires issuance of a construction permit to "modify" a production or utilization facility. The Commission's requirements on license amendments, 10 CFR 50.92, provide that changes constituting a "material alteration" of a facility require issuance of a new construction permit. In the past, the NRC staff has required a new construction permit where the licensee sought to replace a research reactor's control rods, rod drive mechanisms, and core and control room instrumentation with components of a completely different design. See *Virginia Electric and Power Co.* (Surry Power Station, Units 1 and 2), DD-79-19, 10 NRC 625, 656 (1979). In *All Chemical Isotope Enrichment, Inc.* (AlChemIE Facility-1 CPDF Facility-2, Oliver Springs), LBP-89-5, 29 NRC 99 (1989), the licensee was required to obtain a construction permit to alter a U.S. Department of Energy uranium enrichment facility into a stable isotope enrichment facility. On the other hand, construction permits were not issued where a nuclear power plant's steam generators were replaced with generators of a different design, new full-flow condensate polishing demineralization systems were installed, and a new building was constructed. *Surry, supra*. Construction permits were also not required for spent fuel pool modifications. See, e.g., *Portland General Electric Co.* (Trojan

Nuclear Plant), LBP-77-69, 6 NRC 1179 (1979); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-880, 26 NRC 449 (1987). These cases suggest that material alteration of nuclear power plants occur when the fundamental nature of the facility is altered so that the design bases implementing the principal design criteria for the facility are changed.

Such fundamental changes in design or facility purpose are not expected to occur as a consequence of license renewal. Renewal of a nuclear power plant operating license does not serve to transform a nuclear power plant into some other type of facility. Hence, the fundamental nature of a nuclear power plant will not be altered as a result of the renewal application. Moreover, the focus of the final 10 CFR part 54 rule is the management of age-related degradation that is expected to occur during the renewal term. Thus, the activities that must be accomplished in order to demonstrate adequate management of age-related degradation occurring during the renewal term are not likely to involve fundamental changes in the principal design criteria for a nuclear power plant or the design bases implementing these criteria. Activities expected to be accomplished in support of the renewal application may include the replacement of steam generators, primary loop piping, lower reactor internals, electrical power and instrumentation and control cables, and the refurbishment of pumps, motor-operated valves, and NSSS components. Many of these license renewal activities are indistinguishable from the ongoing maintenance and overhaul activities at plants. Other activities, while never before performed on a large scale (e.g., replacement of wiring and cables), do not intrinsically involve changes in fundamental design criteria and design bases. For these reasons, the Commission finds that section 103 nuclear power plant licensees are not expected to undertake plant modifications in connection with the license renewal application that would transform their plants into "new or substantially different" facilities.

Since renewal applications are neither an "initial application" for an operating license nor an initial application for a "new or substantially different facility," the Commission concludes that antitrust considerations are not material in the context of license renewal. Therefore, the final rule does not contain a provision requiring antitrust review of a section 103 license renewal application, and the Commission declines to adopt a commenter's suggestion that license

renewal applicants include information in their renewal application to permit the NRC to determine whether such modifications have occurred.

Despite the Commission's determination in this regard, the Commission notes that antitrust conditions on the existing operating license are not ended when the license is renewed. Existing antitrust conditions would comprise part of the current licensing basis for a plant and therefore would continue to remain in effect during the renewed term.

A commenter challenged the Commission's proposal not to require antitrust review of section 103 licenses, arguing that since a renewal license "plainly is a section 103 license," it is subject to section 105 antitrust review. Significantly, the commenter did not address the fact that Congress did not intend antitrust review for other than initial operating licenses, absent modifications constituting a new or substantially different facility. The commenter states instead that the passage of time in conjunction with changes in the structure of the electric utility industry, reduction in generated cost of nuclear power due to full capital amortization, and changes in plant systems, structures, and components argue in favor of a new antitrust review. The commenter's analysis may be correct, but the AEA does not permit the NRC to take these factors into account in determining the need for antitrust review in license renewals.

Nuclear power plants licensed under section 104.b of the AEA are not subject to antitrust review, since the antitrust review provisions of section 105.c.(1) apply only to plants licensed under section 103. See AEA, section 105.c.(2). Section 105.c.(3) of the AEA as amended in 1970 does provide one circumstance where antitrust review for section 104.b plants may be requested, viz., a person who sought to raise antitrust issues in a section 104.b construction permit case could request an antitrust review within 25 days of the *Federal Register* notice of filing of the operating license. This could be read as providing an opportunity to request antitrust review within 25 days of the *Federal Register* notice for the renewal application. However, as discussed above, the legislative history of the 1970 amendments clearly discloses Congress' intent that only initial operating licenses be subject to antitrust review. The Commission therefore concludes that section 104 facilities are not subject to antitrust review in connection with renewal of their operating licenses.

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The commenter nonetheless argues that section 104.b plants should be subject to antitrust review. The commenter first asserts that the NRC has no authority to relicense plants under section 104.b. The Commission disagrees with that assertion. The commenter cites no statutory provision or explanatory Congressional committee report for this position. In fact, section 102.b of the AEA requires that if the construction permit for a plant was issued under section 104.b, then "any license hereafter issued" shall be under section 104.b. The report by the Joint Committee on Atomic Energy on the 1970 amendment states that "subsection 104.b. licenses would not be convertible to section 103 licenses * * *." H.Rep. No. 1470, 91st Cong., 2d Sess. 28 (1970), S.Rep. No. 1347, 91st Cong., 2d Sess. 28 (1970).

Nonetheless, the commenter claims that the antitrust review exemption for section 104.b plants does not apply if, subsequent to initial licensing, the facility has been modified to such a degree so as to constitute a "new or substantially different facility," citing a passage on page 27 of the Joint Committee report. The commenter then argues that section 104.b plants have been altered to such an extent after their initial licensing so as to constitute a "new or substantially different facility." The Commission believes that the commenter misunderstands the Committee's intent in this regard. Congress never intended that each license amendment or license renewal application filed after the initial license issuance be the occasion for determining anew whether all previous changes now constitute a new or substantially different facility. Rather, the test was to be whether the application, considered by itself, represents an "initial application for a modification which would constitute a new or substantially different facility." Joint Committee Report, at 29. The Commission believes that once the inquiry is properly focused upon the changes proposed in the renewal application, there is little basis for finding that licensees of section 104.b plants will undertake modifications in connection with license renewal applications such that their plants would be transformed into "new or substantially different" facilities. As discussed above in connection with section 103 plants, the refurbishment or replacement activities that licensees are expected to undertake in support of license renewal do not involve fundamental alteration to the purpose of the plant, nor will there be fundamental changes to the design criteria and design

bases. Section 104.b plants are indistinguishable from section 103 plants in this regard. The Commission concludes that section 104.b plant licensees are not expected to undertake plant modifications in connection with the license renewal application that would transform their plants into "new or substantially different" facilities, and therefore no antitrust review need be conducted for section 104.b plants as a consequence of license renewal.

The commenter's suggestion in its supplementary comments that antitrust review is particularly compelling in the case of section 104.b plants actually subjected to antitrust review under section 105.c(3) is unpersuasive. Again, the Joint Committee report makes clear that there was only to be one antitrust review, absent modification of a nuclear power plant such that it could be regarded as "new or substantially different."

The commenter's final point is that the Commission as a matter of policy should undertake an antitrust review in connection with a renewal application. Congress has determined the extent of the NRC's antitrust responsibilities vis-a-vis licensing activities, and the Commission has long indicated its unwillingness to expand the scope of its inquiry beyond that contemplated by statute. See *Houston Lighting and Power Co.*, CLI-77-13, 5 NCR 1303 (1977). Moreover, persons are not precluded from obtaining relief with respect to anticompetitive activities described in the comments. Those who feel they are aggrieved by anticompetitive conduct may request action from the U.S. Department of Justice and the Federal Trade Commission. These Federal agencies have primary jurisdiction in investigating anticompetitive behavior, possess far greater resources and expertise to investigate such activities, and have broader authority to seek or order relief. Finally, aggrieved parties can pursue a private antitrust action in Federal or State courts.

y. Compliance with 10 CFR Part 140

Section 170 of the AEA (commonly referred to as the Price-Anderson Act) establishes financial protection and indemnity requirements for certain NRC licensees. The regulations in 10 CFR part 140 codify the requirements of the Price-Anderson Act. These requirements currently apply to "persons who is (sic) an applicant for or holder of a license issued pursuant to 10 CFR part 50 of this chapter to operate a nuclear reactor." See 10 CFR 140.2(a)(1). Thus, under § 140.2(a)(1), licensees holding renewed nuclear power plant operating licenses are subject to the requirements of 10

CFR part 140. Although renewed operating licenses will now be issued pursuant to 10 CFR part 54, the Commission intends nuclear power plant licensees holding renewed licenses to continue to be subject to 10 CFR part 140. Therefore, the Commission is modifying 10 CFR 140.2(a)(1) and 10 CFR 140.10 to make clear that the applicable requirements of 10 CFR part 140 also apply to licensees under 10 CFR part 54.

In accordance with 10 CFR 50.57(a)(5), each licensee was found to be in compliance with the requirements of 10 CFR part 140 when the original operating license was issued. The Commission does not believe that a new finding of compliance with 10 CFR part 140 is necessary when it issues a renewed operating license under 10 CFR part 54. All licensees are required to comply with 10 CFR part 140 throughout the term of their license. Thereafter, in connection with any further licensing action (e.g., license amendments), the NRC reviews the indemnity provisions and makes any necessary adjustments. In addition, the nuclear power plant insurance pools that form the basis for the financial protection requirements of 10 CFR part 140 inform the NRC each year regarding any changes in insurance or potential cancellations. For these reasons, the Commission concludes that a new finding of compliance with 10 CFR part 140 need not be made in connection with any renewal of a nuclear power plant operating license under 10 CFR part 54.

A law firm commenting on behalf of a number of individual utilities points out that the attachment to the standard indemnity agreement entered into between licensees and the NRC, at 10 CFR 140.92, appendix B, would have to be changed to include the license number for the renewed license. The law firm suggests that the license renewal application include a request to make conforming changes in the attachment to the standard indemnity agreement. The Commission agrees and includes a new provision in § 54.19 that requires a licensee to identify conforming changes in the attachment to the standard indemnity agreement.

The commenter also questions whether Price-Anderson coverage would apply if the renewed license were issued in the form of a supersession license. According to the commenter, an argument could be raised that a supersession license is a "wholly different" license not covered by Price-Anderson. The Commission does not accept this analysis. The final sentence of section 170.c states:

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With respect to any production or utilization facility for which a construction permit is issued between August 30, 1954, and August 1, 2002, the requirements of this subsection shall apply to any license issued for such facility subsequent to August 1, 2002.

It is unclear how the term "any license" could somehow be interpreted not to include a supersession license issued to effectuate operating license renewal. The commenter does not explain what policy, legal, or technical considerations would serve to distinguish supersession licenses so as to defeat Congress' clear intent that facilities with construction permits issued before August 1, 2002, enjoy continued Price-Anderson coverage during the term of "any license" issued after that date. Moreover, the commenter's suggested solution, to amend the existing license's term beyond 40 years, is not legally available to the NRC. (See discussion in section IV.g.) The Commission concludes that Price-Anderson coverage continues to apply to renewed licenses for facilities having construction permits issued prior to August 1, 2002.

The commenter also addressed the question of whether Price-Anderson indemnification applies during the interim period of operation where a timely and sufficient renewal application was filed, the operating license has expired, and the NRC has yet to act on the application. The Commission concludes that Price-Anderson indemnification continues to apply during the interim period of operation. Section 170.c states that an indemnification contract "shall cover public liability arising out of or in connection with the licensed activity." As discussed in Section IV.b, a license is not deemed to be expired if a timely and sufficient renewal application has been filed with the NRC. Since the operating license is deemed to still be in effect and not expired, activities conducted in accordance with the operating license during the interim period of operation are "licensed activities" that are covered by the indemnification contract.

V. Availability of Documents

The principal supporting documents of this supplementary information are:

- (1) NUREG-1412, "Foundation for the Adequacy of the Licensing Bases," U.S. Nuclear Regulatory Commission (USNRC), December 1991.
- (2) NUREG-1398, "Environmental Assessment for Final Rule on Nuclear Power Plant License Renewal," USNRC, December 1991.
- (3) NUREG-1362, "Regulatory Analysis for Final Rule on Nuclear Power Plant License Renewal," USNRC, December 1991.

(4) NUREG-1428, "Analysis of Public Comments on the Proposed Rule on Nuclear Power Plant License Renewal," USNRC, December 1991.

(5) NUREG/CR-5382, "Screening of Generic Safety Issues for License Renewal Considerations," The MITRE Corporation, December 1991.

(6) NUREG-1411, "Response to Public Comments Resulting from the Public Workshop on Nuclear Power Plant License Renewal," USNRC, July 1990.

Copies of all documents cited in the supplementary information section of this final rule are available for inspection, and/or for copying for a fee, in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

In addition, copies of NUREGs cited in this document may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available for purchase from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

VI. Finding of No Significant Environmental Impact

An environmental assessment (EA) of this rule has been prepared pursuant to the National Environmental Policy Act (NEPA) and NRC's regulations in 10 CFR part 51. Under NEPA and 10 CFR part 51, the NRC must consider, as an integral part of its decisionmaking process on the proposed action, the expected environmental impacts of promulgating the rule and reasonable alternatives to the action. The Commission has determined that this rule is not a major Federal action significantly affecting the quality of human environment. The Commission has therefore determined not to prepare an environmental impact statement for this action. The environmental assessment on which the determination is based has been issued as NUREG-1398.

License renewal is and has been permitted under the AEA and previously was implemented in the Commission's regulations at 10 CFR 50.51. This new rule (10 CFR part 54) differs from the previous rule in that it establishes the specific procedural and safety criteria and standards for renewal, whereas the previous rule was silent about such criteria and standards. In either case, the Commission's environmental protection regulations, 10 CFR part 51, would be applied equally in renewing individual operating licenses under either the old or the new rule. The 10 CFR part 54 rule does not change the requirements of 10 CFR part 51.

In preparing the EA, the NRC assessed the possible differences in environmental impacts that might arise due to relicensing under the provisions of 10 CFR part 54 rather than 10 CFR 50.51. License renewal under either rule would involve essentially the same types of analyses and actions, specifically inspection, surveillance, testing, and monitoring (ISTM) and repair, replacement, or refurbishment of selected nuclear plant components and structures that are subject to aging. The scope of these activities would be specific to each plant and be based on an assessment of plant safety and operation. Depending on the specific changes required in each case, the plants would make these changes at least partly during normal refueling shutdowns, but some plants may require additional shutdown prior to expiration of the initial license to accomplish the changes. A work force of from 300 to 950 could be on site during this period, regardless of whether renewal is under previous requirements or the final license renewal rule.

The environmental impacts associated with ISTM and with repair, replacement, or refurbishment would be of the same magnitude as those experienced during other maintenance or replacement activities conducted during the previous operation of the plant. Occupational exposures resulting from these activities are expected to range from 270 to 1930 person-rems based on exposure data from previous major maintenance activities. These impacts would not vary significantly whether renewal is accomplished under previous requirements or the final rule.

The modifications, repairs, and replacements undertaken in each plant would not entail changes to the overall design of the plant. Thus basic plant operating parameters, such as thermal performance, power output, and fuel utilization, would not, in general, be expected to change during any renewal term under either the previous rule or the final rule. Further, occupational exposure and both radiological and nonradiological releases from the plant would be essentially the same whether renewal is achieved under previous requirements or the final rule and are not expected to differ in magnitude from those experienced during operation prior to license renewal. The current average occupational radiation dose per plant of 425 person-rems per year (based on 1987 data) is expected to continue at about that level or lower through a 20-year license renewal term.

Under the final license renewal rule, each licensee is required at the time of application to identify important-to-

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license-renewal systems, structures, and components of the plant that are subject to aging and, during the renewal term, to assess and manage the aging degradation of those components. Though similar objectives would be required under the previous rule, the procedures and standards that would be involved are not specified by the previous rule.

Annual radioactive waste production is not expected to change significantly from rates during the original license term under either rule. A 20-year addition to a 40-year term of operation for a plant would, under either existing requirements or the final license renewal rule, result in about a 50 percent increase in the requirement for high-level waste repository storage, some increase in the spent fuel storage capability at each individual plant, and about a 50 percent increase in Tow-level waste storage capacity.

In sum, the environmental impact resulting from relicensing under 10 CFR part 54 would be similar to that for relicensing under the previous rule (10 CFR 50.51).

VII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0155. The amended information collection requirements contained in the final rule will not become effective until after they are approved by the Office of Management and Budget. Notice of OMB approval will be published in the Federal Register.

Public reporting burden for this collection of information is estimated to average 135,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0136, 0011, 0155, and 0039), Office of Management and Budget, Washington, DC 20503.

VIII. Regulatory Analysis

The NRC prepared a regulatory analysis of the benefits and costs of the final rule and of a set of significant alternatives. The analysis is reported in NUREG-1362. Some highlights of the analysis are presented below.

The specific objectives of the license renewal rule are to establish the standards that must be met by license renewal applicants, to define the scope of information required for reviewing the applications, and to specify the procedures for submitting the applications. In order to determine the specific content of the rule consistent with these objectives, the NRC staff has defined and evaluated a set of specific alternatives that cover the range of alternatives that would meet these objectives, as summarized below. The alternative sets of safety criteria and standards, reflecting differing approaches and stringencies, that were evaluated and compared in the regulatory analysis are as follows:

Alternative A

Current licensing basis (original licensing basis, as amended to the time of the renewed license) with no additional requirements.

This alternative is based on the proposition that risk-significant changes in the plant's materials and equipment generally occur as a gradual, progressive process. Knowledge of plant condition, maintenance actions to keep up an adequately safe condition, and aging management are all required during the original licensing term as well as after renewal. The current licensing basis, together with such future changes in requirements as may become applicable to particular plants, could thus be viewed as adequately accommodating the evolving technical issues of plant aging past the renewal date.

This alternative would require the lowest renewal expenditures but would be least intensive in addressing the advancing age-degradation issues.

Alternative B

Extension of Alternative A to require assessment and management of aging unique to license renewal.

This alternative would place the following requirements on the licensee: systematic identification of systems, structures, and components important to license renewal; selection of structures and components requiring effective programs to manage age-related degradation unique to license renewal; and descriptions of effective programs to adequately manage age-related

degradation unique to license renewal and the bases for the programs.

Alternative B, which is the selected approach, has undergone limited changes as it evolved from the proposed rule to the final rule, as discussed elsewhere in this document. These changes have been evaluated for their effect on risk reduction and cost estimates in the regulatory analysis, particularly with regard to differences in documentation of the current licensing basis and the scope of SSCs requiring programs to manage age-related degradation unique to license renewal, but including other refinements as well. Risk-reduction estimates were not appreciably affected. The estimate of total costs increased slightly, but not enough to change the conclusion regarding the cost-effectiveness of Alternative B relative to the other alternatives.

Alternative B would provide a formal and consistent structure to the licensee's efforts to assess and manage aging unique to license renewal during the renewal term. The results of licensee assessments also would provide information for an NRC finding of whether or not the renewal term requested by the licensee is justified.

As compared with Alternative A, Alternative B offers the benefit of a more intensive and systematic program to manage the effects of aging risks. However, it foregoes Alternatives C and D's new-plant safety enhancements. Alternative B would involve greater renewal expenditures than Alternative A, but less than Alternatives C and D.

Alternative C

Extension of Alternative B to require assessment of design differences against selected new-plant standards.

The selection of applicable new-plant standards would be based on potential risk importance and the practicality of overcoming obstacles to the modifications involved. Applicants would be required to demonstrate, through PRA-aided analyses, that their specific plants' differences from the selected new-plant standards are not risk-significant or that the plant and procedural changes are adequate. The objective of Alternative C would be to upgrade the safety of renewed-license plants above the degree of safety that had been deemed acceptable for the original license term by seeking to attain the improvements envisaged for new plants in the more promising and less difficult areas.

Alternative C seeks safety enhancements over Alternative B, but its renewal expenditures would be higher.

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Alternative D

Extension of Alternative B to require compliance with all new-plant standards.

Some limited compromises would necessarily be involved, both in new-plant requirements that it may not be possible or practical to comply with and in the fact that much retained equipment would not be free of all aging effects. Without some tolerance for near-equivalents or specific exemptions, this alternative may assimilate to the no-renewal option.

The objective of this alternative would be to seek the closest possible safety equivalence of renewal-license plants with new plants, in recognition of the historic gradual tightening of safety requirements over the years and increasing evolution of more conservative, more risk-averse public attitudes towards safety objectives of technological enterprises, notably nuclear power plants.

Alternative D would be the most ambitious in its safety objectives and highest in renewal expenditures.

Conclusion

Alternative B was chosen as the preferred alternative. Its systematic aging management requirement, absent from Alternative A, is warranted by the importance of equipment aging as the key safety issue in nuclear plant life extension and license renewal and is well justified on a cost-benefit basis. The enhancement over Alternative B offered by the selective or full introduction of new-plant standards, as would be the case with Alternatives C and D, are neither necessary for adequate safety nor worthwhile on a cost-benefit basis.

Some commenters argued that, since older plants do not meet the current licensing standards, these plants should not be relicensed or that they should be required to meet some or all of the current licensing standards before relicensing. The Commission disagrees and the bases for the selection of Alternative B have been discussed above. In addition, the Commission's continuing regulatory oversight ensures that a plant's CLB will evolve as a result of ongoing regulatory initiatives and required backfits during the term of operation to incorporate new safety requirements, thereby continuing to ensure that an acceptable level of safety would exist at any time during operation under a renewed license. The CLB is also modified as necessary to ensure that operation will not be inimical to the common defense and security. The

required operation of the plant within the CLB and the Commission's continued regulatory oversight, together with the management of age-related degradation unique to license renewal, provide reasonable assurance that operation of a nuclear power plant during the period of extended operation will not be inimical to the public health and safety or common defense and security.

There were other comments about the analysis of consequences for Alternative B. Comments from the industry stated that the large risk reductions associated with the aging management activities are unrealistic. It was argued that even without the formal assessment and management of Alternative B, NRC and the licensees would recognize any significant increase in risk due to aging and take corrective actions. The Commission does not agree that it is adequate to wait to address aging concerns when they become apparent in plant operations. Analysis of risk due to aging indicates that core damage frequency can increase to relatively high levels before failures occur, so corrective action after a failure does not adequately control risk.

IX. Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant impact on a substantial number of small entities. The final rule sets forth application procedures and technical requirements for renewed operating licenses for nuclear power plants. Nuclear power plant licensees do not fall within the definition of small businesses as defined in section 3 of the Small Business Act, 15 U.S.C. 632, the Small Business Size Standards of the Small Business Administrator (13 CFR part 121), or the Commission's Size Standards (50 FR 50241; December 9, 1985).

X. Non-Applicability of Backfit Rule

This rule addresses the procedural and technical requirements for obtaining a renewed operating license for nuclear power plants. The Commission has not previously addressed the policy, technical, and procedural issues relevant to renewal of nuclear power plant operating licenses either in rulemaking or in guidance documents. Accordingly, this rule does not constitute a "backfit" as defined in 10 CFR 50.109(a)(1) and a backfit analysis need not be prepared. Moreover, policy considerations weigh against consideration of 10 CFR part 54 as a "backfit." The primary impetus for the

backfit rule was "regulatory stability," viz., that once the Commission decides to issue a license, the terms and conditions for operating under that license would not be arbitrarily changed *post hoc*. Regulatory stability is not a relevant issue with respect to 10 CFR part 54. This rule has only a prospective effect upon nuclear power plant licensees. There are no licensees currently holding renewed nuclear powerplant operating licenses who could be affected by this rule; consequently, there are no valid expectations that may be changed regarding the terms and conditions for obtaining a renewed operating license.

As the Commission expressed in the Preamble for 10 CFR part 52, which prospectively changed the requirements for receiving design certifications, the backfit rule:

Was not intended to apply to every regulatory action which changes settled expectations. Clearly, the backfit rule would not apply to a rule which imposed more stringent requirements on all future applicants for construction permits, even though such a rule might arguably have an adverse impact on a person was considering applying for a permit but had not done so yet. In this latter case, the backfit rule protects the construction permit holder, but not the prospective applicant, or even the present applicant. See 54 FR 15385-86; April 18, 1989.

At the November 1989 license renewal workshop and in written comments, the industry asserted that a backfit analysis for part 54 rulemaking is desirable to ensure that the NRC engages in "disciplined decisionmaking" when determining what additional actions should be required by the rule to address age-related degradation. The Commission believes that the industry concerns in this regard have been addressed by preparation of a regulatory analysis, internal agency reviews of the rule by the Committee to Review Generic Requirements (CRGR), review of the rule and associated guidance documents by the Advisory Committee on Reactor Safeguards (ACRS), preparation of analyses required by the Paperwork Reduction Act, and the numerous opportunities for public comment provided by the NRC (e.g., public workshops, advance notices of proposed rulemaking).

In sum, for the reasons set forth above, the Commission has determined that a backfit analysis pursuant to 10 CFR 50.109 need not be prepared for the part 54 rule.

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct

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material, Classified information, Environmental protection, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalties, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 50

Administrative practice and procedure, Antitrust, Backfitting, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 54

Administrative practice and procedure, Age-related degradation, Backfitting, Classified information, Criminal penalty, Environmental protection, Incorporation by reference, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 140

Insurance, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reason set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adding a new part 54 to 10 CFR chapter I and is adopting the following amendments to 10 CFR parts 2, 50, and 140.

57 FR 4912
Published 2/10/92

10 CFR Part 54

RIN 3150—AD04

Nuclear Power Plant License Renewal

Correction

In rule document 91-29628 beginning on page 64943 in the issue of Friday, December 13, 1991, make the following corrections:

§ 54.29 [Corrected]

1. On page 64979, in the first column, in § 54.29(c), in the last line, "action" should read "section".

§ 54.33 [Corrected]

2. On the same page, in the second column, in § 54.33(d), the second paragraph after (c) should carry the designation "(d)"; in paragraph (d), in the 16th line, "Chances" should read "Changes"; and in paragraph (e), in the second line from the bottom, "statute" should read "status".

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

58 FR 45243
Published 8/27/93
Effective 9/27/93

FSAR Update Submittals

See Part 50 Statements of Consideration

60 FR 22461
Published 5/8/95
Effective 6/7/95

10 CFR Parts 2, 51, and 54

RIN 3150—AF05

Nuclear Power Plant License Renewal; Revisions

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) has amended its regulations to revise the requirements that an applicant must meet for obtaining the renewal of a nuclear power plant operating license. The rule also clarifies the required information that must be submitted for review so that the agency can determine whether those requirements have been met and changes the administrative requirements that a holder of a renewed license must meet. These amendments are intended to provide a more stable and predictable regulatory process for license renewal.

EFFECTIVE DATE: June 7, 1995.

FOR FURTHER INFORMATION CONTACT: Thomas G. Hiltz, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 415-1105.

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I. Background

The previous license renewal rule (10 CFR Part 54) was adopted by the Nuclear Regulatory Commission (NRC) on December 13, 1991 (56 FR 64943). This rule established the procedures, criteria, and standards governing the renewal of nuclear power plant operating licenses.

Since publishing the previous license renewal rule, the NRC staff has conducted various activities related to implementing this rule. These activities included: developing a draft regulatory guide, developing a draft standard review plan for license renewal, interacting with lead plant licensees, and reviewing generic industry technical reports sponsored by the Nuclear Management and Resources Council (now part of the Nuclear Energy Institute (NEI)).

In November 1992, the law firm of Shaw, Pittman, Potts, and Trowbridge submitted a paper to the NRC that presented the perspective of Northern States Power Company on the license renewal process. The paper included specific recommendations for making the license renewal process more workable. In addition, industry representatives provided the Commission with views on several key license renewal implementation issues. In late 1992, the NRC staff conducted a senior management review and discussed key license renewal issues with the Commission, industry groups,

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and individual licensees. The NRC staff presented its recommendations regarding several of these key license renewal issues in two Commission policy papers: SECY-93-049, "Implementation of 10 CFR Part 54, 'Requirements for Renewal of Operating Licenses for Nuclear Power Plants,'" and SECY-93-113, "Additional Implementation Information for 10 CFR Part 54, 'Requirements for Renewal of Operating Licenses for Nuclear Power Plants.'"

In its staff requirements memorandum (SRM) of June 28, 1993, the Commission stated that it is essential to have a predictable and stable regulatory process clearly and unequivocally defining the Commission's expectations for license renewal. This process would permit licensees to make decisions about license renewal without being influenced by a regulatory process that is perceived to be uncertain, unstable, or not clearly defined. The Commission directed the NRC staff to convene a public workshop to evaluate alternative approaches for license renewal that best take advantage of existing licensee activities and programs as a basis for concluding that aging will be addressed in an acceptable manner during the period of extended operation. In particular, the Commission directed the NRC staff to examine the extent to which greater reliance can be placed on the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants") as a basis for concluding that the effects of aging will be effectively managed during the license renewal term.

On September 30, 1993, the NRC staff conducted a public workshop in Bethesda, Maryland, that was attended by over 180 people. Attendees included nuclear utilities, industry organizations, public interest groups, architect and engineering firms, consultants and contractors, and Federal and State governments. In December 1993, the NRC staff forwarded SECY-93-331, "License Renewal Workshop Results and Staff Proposals for Revision to 10 CFR Part 54, 'Requirements for Renewal of Operating Licenses for Nuclear Power Plants,'" to the Commission. The NRC staff recommended that the Commission amend 10 CFR Part 54.

In its SRM of February 3, 1994, the Commission agreed with the NRC staff's conceptual approach (explained in SECY-93-331) for performing license renewal reviews and directed the staff to proceed with rulemaking to amend 10 CFR Part 54. The Commission believes that the license renewal process should focus on the management of the effects

of aging on certain systems, structures, and components during the period of extended operation. An objective for the amendment is to establish a more stable and predictable license renewal process. The amendment will identify certain systems, structures, and components¹ that require review in order to provide the necessary assurance that they will continue to perform their intended function for the period of extended operation.

On May 23, 1994, the NRC staff provided the Commission with its proposed amendment to the license renewal rule in SECY-94-140, "Proposed Amendment to the Nuclear Power Plant License Renewal Rule (10 CFR Part 54)." In the SRM of June 24, 1994, the Commission approved the publication of the proposed rule amendment for a 90-day public comment period. In the SRM, the Commission directed the staff to (1) ensure consistency in the use of the terms "structures, systems, and components" and "structures and components," (2) solicit comments on the ability of existing programs to detect failures in redundant structures and components before there is a loss of intended system or structure function, (3) address the need for § 54.4(a)(3) in the statements of consideration for the proposed rule, and (4) review the necessity of retaining § 54.4(a)(4) and include the rationale for its conclusions in the proposed rule.

On September 9, 1994, (59 FR 46574) the proposed revisions to the license renewal rule were published in the **Federal Register** for a 90-day public comment period. The public comment period ended on December 9, 1994. The

¹ Throughout the Statement of Considerations, the phrases, "systems, structures, and components" and "structures and components" are used. As a matter of clarification, the Commission intends that the phrase, "systems, structures, and components" applies to the matters involving the discussions of the overall renewal review, the specific license renewal scope (§ 54.4), time-limited aging analyses (§ 54.21(c)), and the license renewal finding (§ 54.29). The phrase, "structures and components" applies to matters involving the integrated plant assessment (IPA) required by § 54.21(a) because the aging management review required within the IPA should be a component and structure level review rather than a more general system level review. The phrase systems, structures, and components applies to the evaluation of time-limited aging analyses required by § 54.21(c) because such plant-specific analyses may have been carried out, for the initial operating term, for either systems, structures, or components. Reevaluation for the renewal term is intended to focus on the same systems, structures, or components subject to the initial term time-limited aging analyses. The finding required by § 54.29 considers both the results of the integrated plant assessment and the time-limited aging analyses and, therefore, the phrase system, structures, and components is applicable to this section.

Commission received 42 separate responses concerning the proposed rulemaking for license renewal. In early April 1995, after reviewing SECY-95-067, "Final Amendment to the Nuclear Power Plant License Renewal Rule (10 CFR Part 54)," the Nuclear Energy Institute and Yankee Atomic Electric Company provided additional comments. All comments received have been considered in developing this final rule.

Comments on the proposed rule came from a variety of sources. These included: a private citizen, 3 public interest groups (Sierra Club—Atlantic Chapter, Public Citizen, and the Ohio Citizens for Responsible Energy Inc.), 1 Federal organization (Department of Energy (DOE)), 4 State organizations (Illinois Department of Nuclear Safety (Illinois), Connecticut Department of Public Utility Control (Connecticut), New Jersey Department of Environmental Protection (New Jersey), and Nevada Agency for Nuclear Projects, Nuclear Waste Project Office (Nevada)), 2 industry organizations (NEI and Nuclear Utility Group on Equipment Qualification (NUGEQ)), 2 vendor owners groups (Babcock and Wilcox (B & W) Owners Group and Westinghouse Owners Group), 2 vendors/consultants (B & W Nuclear Technologies and Westinghouse Electric Corporation), and 27 separate nuclear power plant licensees. All 27 licensees endorsed the comments provided by NEI, and some utilities also provided additional comments.

The Commission specifically solicited responses to five questions in the proposed rule. The questions and the responses to them can be found in Section V of the Supplementary Information also known as the Statement of Considerations (SOC).

Many of the letters contained similar comments, which were grouped together and are addressed on an issue basis. The NRC has responded to all of the significant points raised by the commenters. Those comments that are applicable to a specific issue discussed in a specific section of the Supplementary Information portion of this document are discussed within that section. Comments received that are not responsive to a particular issue are addressed in Section IV. Public comments received on the proposed rule are available for inspection and copying for a fee at the Commission's Public Document Room located at 2120 L Street NW. (Lower Level), Washington, DC.

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II. Final Action

The final rule revises certain requirements contained in 10 CFR Part 54 and establishes a regulatory process that is simpler, more stable, and more predictable than the previous license renewal rule. The final rule continues to ensure that continued operation beyond the term of the original operating license will not be inimical to the public health and safety. The more significant changes made to the previous license renewal rule are as follows:

(1) The intent of the license renewal review has been clarified to focus on the adverse *effects* of aging rather than identification of all aging *mechanisms*. The final rule is intended to ensure that important systems, structures, and components will continue to perform their intended function in the period of extended operation. Identification of individual aging mechanisms is not required as part of the license renewal review. The definitions of age-related degradation, age-related degradation unique to license renewal, aging mechanisms, renewal term, and effective program have been deleted.

(2) The definitions of integrated plant assessment (IPA) (§ 54.3) and the IPA process (§ 54.21(a)) have been clarified to be consistent with the revised focus in item (1) on the detrimental effects of aging.

(3) A new § 54.4 has been added to replace the definition of systems, structures, and components "important to license renewal" in § 54.3. Section 54.4 defines those systems, structures, and components within the scope of the license renewal rule and identifies the important functions (intended functions) that must be maintained. The requirement to include systems, structures, and components that have limiting conditions for operation in facility technical specifications within the scope of license renewal has been deleted.

(4) In § 54.21(a), the IPA process has been simplified. The wording has been changed to resolve any ambiguity associated with the use of the terms systems, structures, and components (SSCs) and structures and components (SCs). A simplified methodology for determining whether a structure or component requires an aging management review for license renewal has been delineated. Only passive, long-lived structures and components are subject to an aging management review for license renewal. Sections 54.21 (b) and (d) have been deleted, and a new § 54.21(c) dealing with time-limited aging analyses (TLAA) and § 54.21(d) dealing with requirements for the final

safety analysis report (FSAR) supplement have been added. The requirement in § 54.21(c) of the previous rule to review any relief from codes and standards has been deleted, and the requirement in § 54.21(c) of the previous rule to review exemptions from regulatory requirements has been clarified and linked with the time-limited aging analyses.

(5) In § 54.22, the requirement to include detailed justification for certain technical specification changes in the FSAR supplement has been modified to require that the detailed justification be included in the license renewal application.

(6) In § 54.29, the standards for issuance of a renewed license have been changed to reflect the revised focus on the detrimental effects of aging concerning structures and components requiring an aging management review for license renewal and any time-limited issues (including exemptions) applicable for the renewal term. A new § 54.30 has been added to distinguish between those issues identified during the license renewal process that require resolution during the license renewal process and those issues that require resolution during the current license term.

(7) In § 54.33, requirements for continuation of the current licensing basis (CLB) and conditions of renewed licenses have been changed to delete all reference to age-related degradation unique to license renewal (ARDUTLR). Section 54.33(d) of the previous rule, which requires a specific change control process, has been deleted.

(8) In § 54.37, additional records and recordkeeping requirements have been changed to be less prescriptive. Section 54.37(c) has been deleted.

III. Principal Issues

a. Continued Validity of Certain Findings in Previous Rulemaking

The principal purpose of this final rule is to simplify and clarify the previous license renewal rule. Unless otherwise clarified or reevaluated, either directly or indirectly, in the discussion for this final rule, the conclusions in the SOC for the previous license renewal rule remain valid (56 FR 64943; December 13, 1991).

One commenter stated that the previous license renewal rule has been substantially modified in the proposed rule so as to constitute a "recision" of the previous rule.

The Commission does not believe that this final rule represents a recision of the previous license renewal rule, 10 CFR Part 54. As stated in the SOC for

the proposed rule, "[u]nless otherwise clarified or reevaluated, either directly or indirectly, in the discussion for this proposed rule, the conclusions in the SOC for the current license renewal rule remain valid * * *" September 9, 1994 (59 FR 46576). Some of the subjects resolved in the previous Part 54 rulemaking that remain unaffected by this final rule include the concept of the CLB, the nature of the current regulatory process, the regulatory process for assuring compliance with the CLB, form of the renewed license, the term of the renewed license, antitrust considerations, and the applicability of the provisions of the Price-Anderson Act.

Furthermore, regardless of whether this final rule constitutes a recision of the previous rule, the Commission agrees with the commenter that the Administrative Procedure Act (APA) requires the Commission to provide a "reasoned analysis" for the changes to Part 54 that are being adopted in this final rule. The Commission takes issue with the commenter with regard to whether the SOC for the proposed and for the final rule adequately explain the bases for the changes. The Commission believes that this SOC provides a detailed discussion setting forth the perceived problems with the previous license renewal rule as well as a discussion of the bases for this final rule. In sum, the Commission has fulfilled its obligation under the APA to provide the bases for this rule, regardless of whether the changes that are being adopted in this final rule constitute a recision of the previous license renewal rule.

b. Reaffirmation of the Regulatory Philosophy and Approach and Clarification of the Two Principles of License Renewal

(i) Regulatory Philosophy

In developing the previous license renewal rule, the Commission concluded that issues material to the renewal of a nuclear power plant operating license are to be confined to those issues that the Commission determines are uniquely relevant to protecting the public health and safety and preserving common defense and security during the period of extended operation. Other issues would, by definition, have a relevance to the safety and security of the public during current plant operation. Given the Commission's ongoing obligation to oversee the safety and security of operating reactors, issues that are relevant to current plant operation will be addressed by the existing regulatory

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process within the present license term rather than deferred until the time of license renewal. Consequently, the Commission formulated two principles of license renewal.

The first principle of license renewal was that, with the exception of age-related degradation unique to license renewal and possibly a few other issues related to safety only during the period of extended operation of nuclear power plants, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provides and maintains an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security. Moreover, consideration of the range of issues relevant only to extended operation led the Commission to conclude that the detrimental effects of aging is probably the only issue generally applicable to all plants. As a result, continuing this regulatory process in the future will ensure that this principle remains valid during any period of extended operation if the regulatory process is modified to address age-related degradation that is of unique relevance to license renewal. Consequently, the previous license renewal rule focused the Commission's review on this one safety issue.

The second and equally important principle of license renewal holds that the plant-specific licensing basis must be maintained during the renewal term in the same manner and to the same extent as during the original licensing term. This principle would be accomplished, in part, through a program of age-related degradation management for systems, structures, and components that are important to license renewal as defined in the previous rule.

The Commission still believes that mitigation of the detrimental effects of aging resulting from operation beyond the initial license term should be the focus for license renewal. After further consideration and experience in implementing the previous rule, the Commission has, however, determined that the requirements for carrying out the license renewal review can and should be simplified and clarified. The Commission has concluded that, for certain plant systems, structures, and components, the existing regulatory process will continue to mitigate the effects of aging to provide an acceptable level of safety in the period of extended operation.

The objective of a license renewal review is to determine whether the detrimental effects of aging, which could adversely affect the functionality

of systems, structures, and components that the Commission determines require review for the period of extended operation, are adequately managed. The license renewal review is intended to identify any additional actions that will be needed to maintain the functionality of the systems, structures, and components in the period of extended operation. The Commission has determined that it can generically exclude from the IPA aging management review for license renewal (1) those structures and components that perform active functions and (2) structures and components that are replaced based on qualified life or specified time period. However, all systems, structures, and components evaluated based on time-limited aging analyses would be subject to a license renewal evaluation. Structures or components may have active functions, passive functions, or both. Detailed discussions concerning determination of those systems, structures, and components requiring a license renewal review are contained in Section III.c of this SOC; detailed discussions of those structures and components subject to an aging management review are in Section III.f of this SOC; and detailed discussions of systems, structures, and components requiring a license renewal evaluation are contained in Section III.g of this SOC.

This final rule focuses the license renewal review on certain systems, structures, and components that the Commission has determined require evaluation to ensure that the effects of aging will be adequately managed in the period of extended operation. This change is viewed as a modification consistent with the first principle of license renewal established in the previous rule. In view of this final rule, the first principle can be revised to state that, with the possible exception of the detrimental effects of aging on the functionality of certain plant systems, structures, and components in the period of extended operation and possibly a few other issues related to safety only during extended operation, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provides and maintains an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security. As modified, the Commission affirms its support of the first principle of license renewal, as well as the (unmodified) second principle.

(ii) Deletion of the term "Age-Related Degradation Unique to License Renewal"

The use of the term "age-related degradation unique to license renewal" in the previous license renewal rule caused significant uncertainty and difficulty in implementing the rule. A key problem involved how "unique" aging issues were to be identified and, in particular, how existing licensee activities and Commission regulatory activities would be considered in the identification of systems, structures, and components as either subject to or not subject to ARDUTLR. The difficulty in clearly establishing "uniqueness" in connection with the effects of aging is underscored by the fact that aging is a continuing process, the fact that many licensee programs and regulatory activities are already focused on mitigating the effects of aging to ensure safety in the current operating term of the plant, and the fact that no new aging phenomena have been identified as potentially occurring only during the period of extended operation.

The final rule eliminates both the definition of ARDUTLR and use of the term in codified regulatory text. Thus, confusion regarding the detailed definition of ARDUTLR in the rule and questions regarding which structures and components could be subject to ARDUTLR have been eliminated.

Public Citizen noted that deletion of the term ARDUTLR represents alteration of the "original premise" of the rule and this change "has not been precipitated by any realization about reactor aging and safety." Under both the previous renewal rule as well as this final rule, the objective was to supplement the regulatory process, if warranted, to provide sufficient assurance that adequate safety will be assured during the extended period of operation. The Commission has concluded that the only issue where the regulatory process may not adequately maintain a plant's current licensing basis concerns the detrimental effects of aging on the functionality of certain systems, structures, and components in the period of extended operation. While the objective and conclusion has remained the same in the two rulemakings, the first principle of license renewal has been revised consistent with the deletion of ARDUTLR. The Commission recognizes that the concept of ARDUTLR has been removed inasmuch as the term "ARDUTLR" has been deleted from the first principle and from the rule language itself. However, consistent with the focus of the previous rule, the final rule will ensure that the

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effects of aging in the period of extended operation are adequately managed.

The Commission disagrees with the commenter's statement that this change was arrived at without regard to reactor aging and safety. As discussed above, greater understanding that (1) aging is a continuous process and (2) that the actual effects of aging are not explicitly linked, from a technical perspective, to the term of an operating license, led the Commission to consider deleting ARDUTLR. The Commission's current determination that a narrower set of systems, structures, and components than that of the previous license renewal rule should require evaluation to ensure that the effects of aging will be adequately managed in the period of extended operation recognizes that many licensee programs and regulatory activities will continue to adequately manage the adverse effects of aging during the period of extended operation. Therefore, the Commission believes that this alteration is firmly based on an appropriate consideration of reactor safety and aging. The final rule reflects a greater understanding of effective aging management (focus on effects rather than mechanisms) and more realistic expectations of aging in the extended period of operation.

c. Systems, Structures, and Components Within the Scope of License Renewal

(i) Scope of the License Renewal Review and Elimination of the Technical Specification Limiting Conditions for Operation Scoping Category

In the final rule, the Commission has deleted the definition (in § 54.3) of systems, structures, and components important to license renewal and replaced it with a new section entitled § 54.4 Scope. This new section continues to define the set of plant systems, structures, and components that would be the initial focus of a license renewal review. From this set of systems, structures, and components, a license renewal applicant will determine those systems, structures, and components that require review for license renewal. The intent of the definition of systems, structures, and components important to license renewal (i.e., to initially focus the review on important systems, structures, and components) remains intact in the new § 54.4.

In the SOC for the previous license renewal rule, the Commission concluded that applicants for license renewal should focus on the management of aging for those systems, structures, and components that are of

principal importance to the safety of the plant. The Commission also believed that the focus of an aging evaluation for license renewal cannot be limited to only those systems, structures, and components that the Commission has traditionally defined as safety-related. Therefore, the Commission determined that, in order to ensure the continued safe operation of the plant during the renewal term, the initial focus of license renewal should be (1) safety-related systems, structures, and components, (2) nonsafety-related systems, structures, and components that directly support the function of a safety-related system, structure, or component or whose failure could prevent the performance of a required function of a safety-related system, structure, or component, (3) systems, structures, and components relied upon to meet a specific set of Commission regulations, and (4) systems, structures, and components subject to the operability requirements contained in the facility technical specification limiting conditions for operation.

Since publishing the previous rule, the Commission has gained considerable preapplication rule implementation experience and gained a better understanding of aging management, in part, through the development of a regulatory guide to implement the maintenance rule, 10 CFR 50.65. The Commission now believes that (1) by appropriately crediting existing licensee programs that manage the effects of aging and (2) by appropriately crediting the continuing regulatory process, it can more narrowly define those systems, structures, and components within the scope of license renewal and more narrowly focus the license renewal review.

The Commission continues to believe that the initial scope for the license renewal review should not be limited to only those systems, structures, or components that the Commission has traditionally defined as safety-related. However, as discussed below (see Justification for the Elimination of the Technical Specification Limiting Conditions for Operation Scoping Category) the Commission determined that the requirement to consider additional systems, structures, and components subject to the operability requirements contained in the facility technical specification limiting conditions for operation is unnecessary and has been deleted.

The first two categories of systems, structures, and components discussed in the new scope section (§ 54.4(a)(1) and (a)(2)) are the same categories defined in the previous definition of

systems, structures, and components important to license renewal. These scoping categories concern (1) all safety-related systems, structures, and components and (2) all nonsafety-related systems, structures, and components that support the function of a safety-related system, structure, or component or whose failure could prevent a safety-related system, structure, or component from satisfactorily fulfilling its intended function(s). These two categories are meant to capture, as a minimum, automatic reactor shutdown systems, engineered safety feature systems, systems required for safe shutdown (achieve and maintain the reactor in a safe shutdown condition), and nonsafety-related systems, such as auxiliary systems, necessary for the function of safety-related systems.

The third category of systems, structures, and components discussed in the new scope section (§ 54.4(a)(3)) are those systems, structures, and components whose functionality may be relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for 10 CFR 50.48 (Fire Protection), 10 CFR 50.49 (Environmental Qualification), 10 CFR 50.61 (Pressurized Thermal Shock), 10 CFR 50.62 (Anticipated Transients Without Scram), and 10 CFR 50.63 (Station Blackout). This category is also specified in the previous definition of systems, structures, and components important to license renewal and included those systems, structures, and components relied upon to meet certain regulations. This category was developed to ensure that important systems, structures, and components that may be considered outside the traditional definition of safety-related and outside of the first two categories in § 54.4, would be included within the initial focus of license renewal. Through evaluation of industry operating experience and through continuing regulatory analysis, the Commission has reaffirmed that systems, structures, and components required to comply with these regulations are important to safe plant operation because they provide substantial additional protection to the public health and safety or are an important element in providing adequate protection to the public health and safety. The Commission, therefore, concludes that these systems, structures, and components should be included as part of the initial scope of the license renewal review.

In their comments on the proposed revision to the rule, NUGEQ noted that there is substantial overlap between the

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equipment that would be identified in § 54.4(a) and the electrical equipment important to safety identified in § 50.49(b). To provide clarity and consistency and minimize the potential that a licensee will be required to reassess the entire scope of § 50.49 equipment, NUGEQ suggests that § 54.4(a)(3) be modified to include only the additional electric equipment identified in § 50.49(b)(3). The Commission concludes that the rule modification proposed by NUGEQ is not necessary. However, the Commission agrees that for purposes of § 54.4, the scope of § 50.49 equipment to be included within § 54.4 is that equipment already identified by licensees under 10 CFR 50.49(b). Licensees may rely upon their listing of 10 CFR 50.49 equipment, as required by 10 CFR Part 50.49(d), for purposes of satisfying § 54.4 with respect to equipment within the scope of § 50.49.

Justification for the Elimination of the Technical Specification Limiting Conditions for Operation Scoping Category

In the previous license renewal rule, the Commission established a fourth category of systems, structures, and components to be the focus of the initial license renewal review. In this category, the Commission included all systems, structures, and components that have operability requirements in the plant technical specifications limiting conditions for operation. As defined in Standard Technical Specifications, "a system, subsystem, train, component, or device shall be operable when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s)." This was intended to include (1) all systems, structures, and components specifically identified in the technical specification limiting conditions for operation, (2) any system, structure or component for which a functional requirement is specifically identified in the technical specification limiting conditions for operation, and (3) any necessary supporting system, structure or component that must be operable or have operability in order for a required system, structure, or component to be operable.

The Commission previously considered the technical specification

limiting conditions for operation scoping category to be consistent with the Commission's intent not to re-examine the entire plant for license renewal but to ensure that all systems, structures, and components of principal importance to safe plant operation were identified and, if necessary, evaluated. However, existing technical specifications for many plants have functional requirements on certain systems, structures, and components with low or indirect safety significance. Preapplication rule implementation experience has indicated that this category of systems, structures, and components, as defined in the previous rule, could lead to an unwarranted re-examination of plant systems, structures, and components that are not of principal importance for license renewal.

For example, limiting conditions for operation are frequently included in technical specifications for plant meteorological and seismic monitoring instrumentation, main turbine bypass systems, and traversing incore probes. These requirements, while important for certain aspects of power plant operation, have little or no direct bearing on protection of public health and safety. Recognizing this, the Commission concludes that current activities for such systems, structures, and components, including licensee programs and the NRC regulatory process, are sufficient and that no additional evaluation is necessary for license renewal. The technical specification category would only add (i.e., not captured by § 54.4(a)(1)-(3)) nonsafety-related systems, structures, and components that do not support safety-related systems, structures, and components. As discussed in greater detail below, the Commission concludes that these additional nonsafety-related systems, structures, and components should not be the subject of license renewal.

Relationship Between Improved Technical Specifications and License Renewal Scoping

While it is not the Commission's intent to require applicants for license renewal to "improve" their technical specifications, it remains the Commission's intent to focus the license renewal review on those systems, structures, and components that are of principal importance to safety. Therefore, a license renewal scoping category that requires wholesale consideration of systems, structures, and components within the scope of technical specifications may not appropriately focus licensee and NRC

resources on those systems, structures, and components that are of principal importance to safety.

In its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58 FR 39132; July 22, 1993), the Commission identified four criteria for defining the scope of improved technical specifications. The four criteria are as follows:

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Nuclear power plant licensees that voluntarily choose to "improve" their technical specifications based on this Commission policy may submit changes to the Commission for review and approval that will remove systems, structures, and components from their technical specifications before conducting license renewal (experience shows that approximately 40 percent of limiting conditions for operation and surveillance requirements could be deleted).

After considering the substantial overlap between the four criteria for defining the scope of technical specifications and the first three scoping categories for license renewal, the Commission concluded that the number of additional systems, structures, and components that would be considered as a result of applying the technical specification scoping category to improved technical specifications is small. These additional systems, structures, and components most likely would result from differences in each plant's current licensing basis and from the application of these criteria and categories on a plant-specific bases.

The Commission cannot make conclusions in this rulemaking about the appropriateness of whether these

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additional systems, structures, and components should be included in an individual plant's technical specifications. However, the Commission can conclude that these additional systems, structures, and components are of a relatively lower safety significance because they are, by exclusion, nonsafety-related systems, structures, and components whose failure cannot prevent the performance or reduce the availability of a safety-related system, structure, or component. Additionally, the Commission believes that the existing regulatory process for these additional nonsafety-related systems, structures, and components is adequate to ensure that age degradation will not result in a loss of functionality in accordance with the CLB.

The Commission believes that there is sufficient experience with its policy on technical specifications to apply that policy generically in revising the license renewal rule consistent with the Commission's desire to credit existing regulatory programs. Therefore, the Commission concludes that the technical specification limiting conditions for operation scoping category is unwarranted and has deleted the requirement that identifies systems, structures, and components with operability requirements in technical specifications as being within the scope of the license renewal review.

(ii) Intended Function

The previous license renewal rule required an applicant for license renewal to identify, from systems, structures, and components important to license renewal, those structures and components that contribute to the performance of a "required function" or could, if they fail, prevent systems, structures, and components from performing a "required function." This requirement initially posed some difficulty in conducting pre-application reviews of proposed scoping methodologies because it was not clear what was meant by "required function." Most systems, structures, and components have more than one function and each could be regarded as "required." Although the Commission could have required a licensee to ensure all functions of a system, structure, or component as part of the aging management review, the Commission concluded that this requirement would be unreasonable and inconsistent with the Commission's original intent to focus only on those systems, structures, and components of primary importance to safety. Consideration of ancillary functions would expand the scope of the license renewal review beyond the

Commission's intent. Therefore, the Commission determined that "required function" in the previous license renewal rule refers to those functions that are responsible for causing the systems, structures, and components to be considered important to license renewal.

To avoid any confusion with the previous rule, the Commission has changed the term "required function" to "intended function" and explicitly stated in § 54.4 that the intended functions for systems, structures, and components are the same functions that define the systems, structures, and components as being within the scope of the final rule.

(iii) Bounding the Scope of Review

Pre-application rule implementation has indicated that the description of systems, structures, and components subject to review for license renewal could be broadly interpreted and result in an unnecessary expansion of the review. To limit this possibility for the scoping category relating to nonsafety-related systems, structures, and components, the Commission intends this nonsafety-related category (§ 54.4(a)(2)) to apply to systems, structures, and components whose failure would prevent the accomplishment of an intended function of a safety-related system, structure, and component. An applicant for license renewal should rely on the plant's CLB, actual plant-specific experience, industry-wide operating experience, as appropriate, and existing engineering evaluations to determine those nonsafety-related systems, structures, and components that are the initial focus of the license renewal review. Consideration of hypothetical failures that could result from system interdependencies that are not part of the CLB and that have not been previously experienced is not required.

Likewise, to limit the potential for unnecessary expansion of the review for the scoping category concerning those systems, structures, and components whose function is relied upon in certain plant safety analyses to demonstrate compliance with the Commission regulations (i.e., environmental qualification, station blackout, anticipated transient without scram, pressurized thermal shock, and fire protection), the Commission intends that this scoping category include all systems, structures, and components whose function is relied upon to demonstrate compliance with these Commission's regulations. An applicant for license renewal should rely on the plant's current licensing bases, actual

plant-specific experience, industry-wide operating experience, as appropriate, and existing engineering evaluations to determine those systems, structures, and components that are the initial focus of the license renewal review. Consideration of hypothetical failures that could result from system interdependencies, that are not part of the current licensing bases and that have not been previously experienced is not required.

Several commenters noted that the word "directly" did not precede the phrase "prevent satisfactory accomplishment of any of the functions identified in paragraphs (a)(1)(i), (ii), or (iii) of this section" in § 54.4(a)(2) and concluded that, in the absence of the word "directly," the license renewal review could cascade into a review of second-, third-, or fourth-level support systems. The Commission reaffirms its position that consideration of hypothetical failures that could result from system interdependencies that are *not part of the CLB* and that have not been previously experienced is not required. However, for some license renewal applicants, the Commission cannot exclude the possibility that hypothetical failures that are *part of the CLB* may require consideration of second-, third-, or fourth-level support systems. In these cases the word "directly" may cause additional confusion, not clarity, regarding the systems, structures and components required to be within the scope of license renewal. In removing the word "directly" from this scoping criterion, the Commission believes it has (1) achieved greater consistency between the scope of the license renewal rule and the scope of the maintenance rule (§ 50.65) regarding nonsafety-related systems whose failure could prevent satisfactory accomplishment of safety-related functions and thus (2) promoted greater efficiency and predictability in the license renewal scoping process.

The inclusion of nonsafety-related systems, structures, and components whose failure could prevent other systems, structures, and components from accomplishing a safety function is intended to provide protection against safety function failure in cases where the safety-related structure or component is not itself impaired by age-related degradation but is vulnerable to failure from the failure of another structure or component that may be so impaired. Although it may be considered outside the scope of the maintenance rule, the Commission intends to include equipment that is not seismically qualified located near seismically qualified equipment (i.e.,

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Seismic II/I equipment already identified in a plant CLB) in this set of nonsafety-related systems, structures and components.

In one of its comments, the Sierra Club indicated that all nonsafety-related equipment and required functions should be considered because failures could go unnoticed for a long period of time and start a chain reaction that could lead to catastrophic events. Nevada also proposed a fuel life-cycle approach to license renewal that would consider the plant operations as an "Integrated Operating System." The Commission disagrees with the Sierra Club comment and the Commission concludes that the license renewal approach proposed by Nevada would result in the consideration of issues outside the scope of this rule and result in consideration of additional systems, structures, and components that are not directly related to the safe operation of the plant for the period of extended operation. The Commission has reviewed its scoping criteria and determined that the criteria (1) reflect an appropriate consideration of the existing regulatory process, (2) properly focus the initial license renewal review on those systems, structures, and components that are most important to safety and (3) will not result in an unwarranted re-examination of the entire plant.

One commenter indicated that the scope of systems, structures, and components considered for license renewal could be further reduced by identifying and addressing the very few issues in which a plant's design must specifically consider 40 years of degradation. In one of its comments, Illinois suggested that those systems, structures and components required to mitigate a sequence leading to core damage, as determined by plant-specific probabilistic analyses, and those systems, structures, and components required to make protective action recommendations for the protection of the public, should also be included in the scope of this rulemaking.

As the commenter suggested, the Commission did consider further limiting the scope of license renewal to certain issues in a plant's design that were specifically based on a time period bounded by the current license term (40 years). As a result, the Commission explicitly identified the need to review time-limited aging analyses and incorporated this requirement into the final rule. However, as discussed in Section III.d and III.f of this SOC, the Commission determined that, at this time, there was not an adequate basis to generically exclude passive, long-lived

structures and components from an aging management review. Therefore, the Commission believes it is inappropriate to further reduce the systems, structures, and components within the scope of license renewal.

Regarding the use of probabilistic analyses in the license renewal scoping process, a separate Section III.c(iv) has been added to the SOC, to discuss the role of probabilistic risk assessment in license renewal. Regarding systems, structures, and components required to make protective action recommendations, the Commission thoroughly evaluated emergency planning considerations in the previous license renewal rulemaking. These evaluations and conclusions are still valid and can be found in the SOC for the previous license renewal rule (56 FR 64943 at 64966). Therefore, the Commission concludes that systems, structures, and components required for emergency planning, unless they meet the scoping criteria in § 54.4, should not be the focus of a license renewal review.

(iv) Use of Probabilistic Risk Assessment in License Renewal

Several comments from Illinois concerned the use of probabilistic analysis techniques in the license renewal process. Illinois indicated that the NRC should require rigorous probabilistic analyses, require these analyses to be used in appropriate regulatory applications, and require these probabilistic analyses to be updated, as needed. In addition, Illinois noted that the previous rule and the proposed rule did not require consideration of individual plant examination (IPE) results.

The Commission is finalizing a policy statement regarding the increased use of probabilistic risk assessment (PRA) methods in nuclear regulatory activities (59 FR 63389; December 8, 1994). However, there is currently no additional guidance for licensees to conduct more rigorous probabilistic analyses beyond the guidance for an IPE and an IPE External Events (IPEEE) (Generic Letter 88-20). The Commission's consideration of regulatory requirements associated with developing, maintaining, or using probabilistic analyses is beyond the scope of this rulemaking.

The CLB for currently operating plants is largely based on deterministic engineering criteria. Consequently, there is considerable logic in establishing license renewal scoping criteria that recognize the deterministic nature of a plant's licensing basis. Without the necessary regulatory requirements and appropriate controls for plant-specific

PRA, the Commission concludes that it is inappropriate to establish a license renewal scoping criterion, as suggested by Illinois, that relies on plant-specific probabilistic analyses. Therefore, within the construct of the final rule, PRA techniques are of very limited use for license renewal scoping.

In license renewal, probabilistic methods may be most useful, on a plant-specific basis, in helping to assess the relative importance of structures and components that are subject to an aging management review by helping to draw attention to specific vulnerabilities (e.g., results of an IPE or IPEEE). Probabilistic arguments may assist in developing an approach for aging management adequacy. However, probabilistic arguments alone will not be an acceptable basis for concluding that, for those structures and components subject to an aging management review, the effects of aging will be adequately managed in the period of extended operation.

Illinois also indicated that as probabilistic insights are more fully integrated with our traditional deterministic methods of regulation, they may define a narrower safety focus. Thus, the use of probabilistic insights could reduce the scope of the very programs that the license renewal rule credits for monitoring and identifying the effects of aging.

The Commission reaffirms its previous conclusion (see 56 FR 64943 at 64956) that PRA techniques are most valuable when they focus the traditional, deterministic-based regulations and support the defense-in-depth philosophy. In this regard, PRA methods and techniques would focus regulations and programs on those items most important to safety by eliminating unnecessary conservatism or by supporting additional regulatory requirements. PRA insights would be used to more clearly define a proper safety focus, which may be narrower or may be broader. In any case, PRA will not be used to justify poor performance in aging management or to reduce regulatory or programmatic requirements to the extent that the implementation of the regulation or program is no longer adequate to credit for monitoring or identifying the effects of aging.

d. The Regulatory Process and Aging Management

(i) Aging Mechanisms and Effects of Aging

The license renewal review approach discussed in the SOC accompanying the December 13, 1991, rule emphasized the

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identification and evaluation of aging mechanisms for systems, structures, and components within the scope of the rule. Primarily through pre-application implementation experience associated with the previous license renewal rule and the evaluation of comments resulting from the September 1993 license renewal workshop, the Commission determined that an approach to license renewal that focuses only on the identification and evaluation of aging mechanisms could constitute an open-ended research project. Ultimately, this type of approach may not provide reasonable assurance that certain systems, structures, and components will continue to perform their intended functions. The Commission believes that regardless of the specific aging mechanism, only aging degradation that leads to degraded performance or condition (i.e., detrimental effects) during the period of extended operation is of principal concern for license renewal. Because the detrimental effects of aging are manifested in degraded performance or condition, an appropriate license renewal review would ensure that licensee programs adequately monitor performance or condition in a manner that allows for the timely identification and correction of degraded conditions. The Commission concludes that a shift in focus to managing the detrimental effects of aging for license renewal reviews is appropriate and will provide reasonable assurance that systems, structures, and components are capable of performing their intended function during the period of extended operation.

This shift in focus of the license renewal review has resulted in several proposed changes to the license renewal rule. These changes include deleting the definitions of aging mechanism and age-related degradation and replacing the requirement to manage ARDUTLR in the IPA with a requirement to demonstrate that the effects of aging will be adequately managed for the period of extended operation.

Illinois commented that additional research should be undertaken to ensure all aging effects are understood. Mitigating the effects of aging cannot be completely divorced from understanding the aging mechanisms. Illinois indicated that the effects of aging on a system, structure, and component cannot be managed without some consideration of all the aging mechanisms causing the effects. As some aging mechanisms are not well understood, research will still need to be performed, and the regulatory

process will still need to be adequate to address aging uncertainties.

When the Commission concluded that the proper approach for a license renewal review was one that focused on mitigating the detrimental effects of aging regardless of the mechanisms causing the effects, the intent was to concentrate efforts on identification of functional degradation; that is, except for well-understood aging mechanisms, the straightforward approach to detecting and mitigating the effects of aging begins with a process that verifies that the intended design functions of systems, structures, and components have not been compromised or degraded. Once functional degradation is identified through performance or condition monitoring, corrective actions can be applied. The Commission agrees that adverse aging effects cannot be completely divorced from an understanding of the aging mechanisms. The corrective actions that should be taken following identification of functional degradation logically include determination of the cause of the degradation, which could involve mechanisms other than aging (e.g., faulty manufacturing processes, faulty maintenance, improper operation, or personnel errors). If one or more aging mechanisms are the cause of functional degradation, corrective actions should focus, as appropriate, on prevention, elimination, or management of the effects caused by the mechanism(s) in the future. Licensees are required by current regulations to develop and implement programs that ensure that conditions adverse to quality, including degraded system, structure, and component function, are promptly identified and corrected.

(ii) Regulatory Requirements and Reliance on the Regulatory Process for Managing the Effects of Aging

Commercial nuclear power plants have been performing a variety of maintenance activities that function effectively as aging management programs since plants were initially constructed. The Commission also recognizes that both the industry and the NRC have acquired extensive experience and knowledge in the area of nuclear power plant maintenance. Regarding the need for a maintenance rule, the results of the Commission's maintenance team inspections (MTIs) indicated that licensees generally have adequate maintenance programs in place and have exhibited an improving trend in implementing them (56 FR 31307; July 10, 1991). However, the Commission determined that a maintenance rule was needed, in part

because the MTIs identified some common maintenance-related weaknesses, such as inadequate root-cause analysis leading to repetitive failures, lack of equipment performance trending, and lack of appropriate consideration of plant risk in the prioritization, planning, and scheduling of maintenance.

The Commission amended its regulations, at 10 CFR 50.65, on July 10, 1991 (56 FR 31306), to require commercial nuclear power plant licensees to monitor the effectiveness of maintenance activities for safety-significant plant equipment to minimize the likelihood of failures and events caused by the lack of effective maintenance. The maintenance rule and its implementation guidance (1) Provide for continued emphasis on the defense-in-depth principle by including selected balance-of-plant (BOP) systems, structures, and components, (2) integrate risk consideration into the maintenance process, (3) provide an enhanced regulatory basis for inspection and enforcement of BOP maintenance-related issues, and (4) provide a strengthened regulatory basis for ensuring that the progress achieved to date is sustained in the future. The requirements of the maintenance rule must be implemented by each licensee by July 10, 1996.

In June 1993, the NRC issued Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The regulatory guide provides an acceptable method for complying with the requirements of the maintenance rule and states that a licensee can use alternative methods if the licensee can demonstrate that these alternative methods satisfy the requirements of the rule. Because aging is a continuing process, the Commission has concluded that existing programs and regulatory requirements that continue to be applicable in the period of extended operation and provide adequate aging management for systems, structures, and components should be credited for license renewal. Accordingly, the amendment to the license renewal rule focuses the renewal review on plant systems, structures, and components for which current activities and requirements may not be sufficient to manage the effects of aging in the period of extended operation.

Since publishing the license renewal rule on December 13, 1991, the regulatory process (e.g., regulatory requirements, aging research, inspection requirements, and inspection philosophy) for managing the detrimental effects of aging for important systems, structures, and

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components has continued to evolve. The changes in the regulatory process and initial experience with the license renewal rule have had a direct bearing on the Commission's conclusions regarding the appropriate focus of aging management review for systems, structures, and components that are within the scope of the license renewal rule, and how these systems, structures, and components are treated in the IPA process.

(iii) Maintenance Rule Requirements and Implementation

As discussed in the regulatory analysis for the maintenance rule and in Regulatory Guide 1.160, the Commission's determination that a maintenance rule was needed arose from the conclusion that proper maintenance was essential to plant safety. A clear link exists between effective maintenance and safety as it relates to factors such as the number of transients and challenges to safety-related systems and the associated need for operability, availability, and reliability of safety-related systems, structures, and components. In addition, good maintenance is important to providing assurance that failures of other than safety-related systems, structures, and components that could initiate or adversely affect a transient or accident are minimized. Minimizing challenges to safety-related systems is consistent with the Commission's defense-in-depth philosophy. Therefore, nuclear power plant maintenance is clearly important to protecting the public health and safety.

The maintenance rule requires that power reactor licensees monitor the performance or condition of systems, structures, and components against licensee-established goals in a manner sufficient to provide reasonable assurance that these systems, structures, and components are capable of fulfilling their intended functions. Performance and condition monitoring against licensee-established goals is not required, where it can be demonstrated that the performance or condition of systems, structures, and components is being effectively controlled through the performance of appropriate preventive maintenance. Performance and condition-monitoring activities and associated goals and preventive maintenance activities must be evaluated once every refueling cycle, provided the interval between evaluations does not exceed 24 months.

As discussed in Regulatory Guide 1.160, the extent of monitoring may vary from system to system, depending on the system's importance to risk. Some

monitoring at the component level may be necessary, although, most of the monitoring could be done at the plant, system, or system train level. For systems, structures, and components that fall within the requirements of § 50.65(a)(1), licensees must establish goals and monitor performance against these goals. These goals should be derived from information in the CLB and should be established commensurate with safety significance of the systems, structures, or components. These goals may be performance-oriented (reliability, unavailability) or condition-oriented (pump flow, pressure, vibration, valve stroke time, current, electrical resistance). An effective preventive maintenance program is required under § 50.65(a)(2) if monitoring under § 50.65(a)(1) is not performed.

The SOC for the maintenance rule (56 FR 31308; July 10, 1991) states that the scope of § 50.65(a)(2) includes those systems, structures, and components that have "inherently high reliability" without maintenance. It is expected that many long-lived, passive structures and components could be considered inherently reliable by licensees and not be monitored under 10 CFR 50.65(a)(1). There may be few, if any, actual maintenance activities (e.g., inspection or condition monitoring) that a licensee conducts for such structures and components. Further, experience gained under the previous license renewal rule, staff review of industry reports, NRC aging research, and operating experience indicate that such structures and components should be reviewed for license renewal if they are passive and long-lived. Therefore, the Commission believes that such structures and components that are technically within the scope of the maintenance rule should not be generically excluded from review for license renewal on the basis of their inherent reliability.

Although the maintenance rule does not become effective and enforceable until July 10, 1996, the Commission believes that crediting the rule (along with the entire regulatory program) is acceptable to support managing the effects of aging for certain systems, structures, and components. As discussed in Regulatory Guide 1.160, implementation of the maintenance rule relies extensively on existing maintenance programs and activities. The industry has developed guidance for complying with the maintenance rule and the NRC staff has reviewed this guidance and found it acceptable. Many utilities are expected to follow the industry guidance in implementing the maintenance rule. Furthermore, the

failure of any licensee to comply with the maintenance rule is enforceable by the Commission after July 10, 1996.

One commenter stated that reliance on the maintenance rule is inappropriate because the NRC does not plan to scrutinize every system, structure, and component and how it is monitored in assuring compliance with the maintenance rule. According to the commenter, if there are uncertainties in the maintenance rule or its implementation, then there is uncertainty in the license renewal rule. The commenter also stated that the aging management analyses and measurements required by the license renewal rule for the period of extended operation should commence for all operating reactors when the maintenance rule goes into effect. The NRC disagrees with the commenter that the 100-percent inspection of all systems, structures, and components is necessary to verify compliance with NRC requirements, including the maintenance rule. The Commission disagrees with the commenter that the licensees should be required to commence aging management reviews required for license renewal when the maintenance rule becomes effective.

As discussed in the SOC for the previous rule (56 FR at 64951), the NRC inspection methodology utilizes a sampling technique. When problems are identified, the inspection sample size is broadened to determine the extent of the problem. Additionally, while the maintenance rule does not require licensees to submit their maintenance programs to the NRC for review and approval, compliance with the requirements of the maintenance rule will be verified through the NRC inspection process. The NRC will be conducting inspections on a routine basis onsite to verify licensee compliance with the maintenance rule. Furthermore, as discussed in Section III(d)(iv) of this SOC, the maintenance rule allows for monitoring at a train, system, or plant level, and that goals should be commensurate with safety. If performance problems arise, corrective action requirements of 10 CFR 50, Appendix B, and the maintenance rule require effective corrective actions to preclude repetition of the failure.

Passive, long-lived structures and components that are the focus of the license renewal rule are also within the requirements of the maintenance rule, as discussed in the SOC Section III(d)(iv). Treatment of these structures and components, however, under the maintenance rule is likely to involve minimal preventive maintenance or monitoring to maintain functionality of

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such structures and components in the original operating period. Consequently, under the license renewal rule, the Commission did not allow for a generic exclusion of passive, long-lived structures and components based solely on maintenance activities associated with implementing the requirements of the maintenance rule. It also would be inappropriate to require that all licensees perform an aging management review required for license renewal when some licensees may not seek license renewal and do not intend to operate beyond the end of their current operating license. Furthermore, if aging issues are identified during the license renewal review that apply to the current operating term, licensees are required to take measures under their current license to ensure that the intended function of systems, structures, and components will be maintained in accordance with the CLB throughout the term of the current license. In addition, if aging issues are identified during the license renewal review that apply to the current operating term, the NRC will evaluate these issues for generic applicability as part of the regulatory process.

Therefore, the Commission believes that with the additional experience it has gained with age-related degradation reviews and with the implementation of the maintenance rule, there is a sufficient basis for concluding that current licensee programs and activities, along with the regulatory process, will be adequate to manage the effects of aging on the active functions of all systems, structures, and components within the scope of license renewal during the period of extended operation so that the CLB will be maintained. The bases for this conclusion are discussed further in the following sections.

(iv) Integration of the Regulatory Process and the Maintenance Rule With the License Renewal Rule

Because of the resultant insight and understanding that the NRC gained in developing the implementation guidance for the maintenance rule, the Commission is now in a position to more fully integrate the maintenance rule and the license renewal rule. Because the intent of the license renewal rule and the maintenance rule is similar (ensuring that the detrimental effects of aging on the functionality of important systems, structures, and components are effectively managed), the Commission has determined that the license renewal rule should credit existing maintenance activities and maintenance rule requirements for most structures and components. Recognition

that licensee activities associated with the implementation of the maintenance rule will continue throughout the renewal period and are consistent with the first principle of license renewal is fundamental to establishing credit for the existing programs and the requirements of the maintenance rule. As a result, the requirements in this rule reflect a greater reliance on existing licensee programs that manage the detrimental effects of aging on functionality, including those activities implemented to meet the requirements of the maintenance rule.

Two commenters stated that it is inappropriate for the license renewal rule to rely on the maintenance rule implementation because 10 CFR 50.65 will not be in effect until July 10, 1996. The Commission disagrees with the commenters. As discussed in Section III.d. (ii) and (iii) of this SOC, the results of the Commission's MTIs indicate that licensees have adequate maintenance programs in place and have exhibited an improving trend in implementing them. Nuclear power plants have been performing a variety of maintenance activities since plants were initially constructed. The need for a maintenance rule arose primarily because the MTIs identified three common maintenance-related weaknesses (inadequate root-cause analysis, lack of equipment performance trending, and lack of appropriate consideration of plant risk in the prioritization, planning, and scheduling of maintenance). Additionally, the SOC for the maintenance rule (56 FR 31310) states that "[T]he focus of the rule is on the results achieved through maintenance, and, in this regard, it is not the intent of the rule that existing licensees necessarily develop new maintenance programs." Furthermore, as stated in Regulatory Guide 1.160, it is intended that activities currently being conducted by licensees, such as technical specification surveillance testing, can satisfy monitoring requirements. Such activities could be integrated with, and provide the basis for, the requisite level of monitoring. Finally, at the time of this rulemaking, nine licensees volunteered to participate in an NRC pilot inspection effort to review implementation of the maintenance rule. Five pilot inspections had been completed at nuclear power plants. The pilot inspections involved a step-by-step review of the implementation of the maintenance rule. In general, the pilot inspections found that licensees were able to utilize existing maintenance activities in complying with requirements of the

maintenance rule. Therefore, for these reasons and as discussed in Section III.(d) of this SOC, the Commission continues to believe that there is a sufficient basis for concluding that current licensee programs and activities, along with the regulatory process, will be adequate to manage the effects of aging on the active functions of all systems, structures, and components within the scope of license renewal during the period of extended operation so that the CLB will be maintained.

In addition to the maintenance rule, the Commission has many individual requirements relative to maintenance throughout its regulations. These include 10 CFR 50.34(a)(3)(i); 50.34(a)(7); 50.34(b)(6) (i), (ii), (iii), and (iv); 50.34(b)(9); 50.34(f)(1) (i), (ii), (iii); 50.34(g); 50.34a(c); 50.36(a); 50.36(c) (2), (3), (5), and (7); 50.36a(a)(1); 50.49(b); 50.55a(g); Part 50, Appendix A, Criteria 1, 13, 18, 21, 32, 36, 37, 40, 43, 45, 46, 52, 53; and Part 50, Appendix B.

(v) Excluding Structures and Components With Active Functions

Performance and condition monitoring for systems, structures, and components typically involves functional verification, either directly or indirectly. Direct verification is practical for active functions such as pump flow, valve stroke time, or relay actuation where the parameter of concern (required function), including any design margins, can be directly measured or observed. For passive functions, the relationship between the measurable parameters and the required function is less directly verified. Passive functions, such as pressure boundary and structural integrity are generally verified indirectly, by confirmation of physical dimensions or component physical condition (e.g., piping structural integrity can be predicted based on measured wall thickness and condition of structural supports, but its seismic resistance capability cannot be verified by inspection alone). Although the requirements of the maintenance rule apply to systems, structures, and components that perform both active and passive functions, the Commission has determined that performance and condition-monitoring programs for structures and components that perform passive functions present limitations that should be considered in determining that structures and components can be generically excluded from an aging management review for license renewal.

On the basis of consideration of the effectiveness of existing programs which monitor the performance and condition of systems, structures, and components

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that perform active functions, the Commission concludes that structures and components associated only with active functions can be generically excluded from a license renewal aging management review. Functional degradation resulting from the effects of aging on active functions is more readily determinable, and existing programs and requirements are expected to directly detect the effects of aging. Considerable experience has demonstrated the effectiveness of these programs and the performance-based requirements of the maintenance rule delineated in § 50.65 are expected to further enhance existing maintenance programs. For example, many licensee programs that ensure compliance with technical specifications are based on surveillance activities that monitor performance of systems, structures, and components that perform active functions. As a result of the continued applicability of existing programs and regulatory requirements, the Commission believes that active functions of systems, structures, and components will be reasonably assured in any period of extended operation. Further discussion and justification for excluding structures and components that perform active functions and are within the scope of the license renewal rule, but outside the scope of the maintenance rule, are presented in Section (vi).

One commenter argued that the Commission should not exclude active components because aging can be discontinuous, leading to catastrophic failures. Examples of catastrophic failures provided by the commenter included overstretching of metal, bending of beams, and embrittlement. In their supplemental comments, NEI and Yankee Atomic Electric Company indicated that the use of the term "portions of" could be misinterpreted and lead to an unnecessary evaluation of all passive subcomponents of active structures and components.

The commenters appear to have misunderstood the Commission's intent with regard to "active" and "passive" functions. Passive parts of structures and components that only perform active functions do not require an aging management review. Structures and components that perform both passive and active functions require an aging management review for their intended passive function only. The exclusion regarding active components is focused on active functions rather than on an exclusion of the entire component. For example, diesel generators and air compressors (excluding structural supports) perform active functions and

can be excluded from an aging management review. The examples given by the commenter for catastrophic failures are those related to "passive" intended functions (e.g., structural integrity, pressure boundary). It is the Commission's intent to include these "passive" functions in the license renewal review, irrespective of the components "active" function. For example, a safety system pump casing (i.e., pressure boundary function) would be required to be reviewed, while the pump (i.e., the active pumping function) would not. The Commission believes that considerable experience has demonstrated that its regulatory process, including the performance-based requirements of the maintenance rule, provide adequate assurance that degradation due to aging of structures and components that perform active functions will be appropriately managed to ensure their continued functionality during the period of extended operation. In addition, to address the NEI and Yankee Atomic Electric Company comments, the Commission has removed the words "portions of" and similar wording from the Statement of Considerations when it could be misinterpreted to mean a subcomponent piece-part demonstration.

A commenter argued that the Commission should not exclude from review manual valves that are rarely operated during the life of the plant, some of which are relied on as part of contingency actions in plant emergency operating procedures. The commenter argued that because these valves are rarely "officially" exercised, there is insufficient evidence that the active functions will be maintained in the renewal period. The Commission disagrees with the commenter's assertion that there is insufficient evidence that the active functions will be maintained in the renewal period. Such valves are within the scope of various regulatory programs, including the maintenance rule. Consequently, the ability of the valves to perform their intended function must be assured through either (1) effective preventive maintenance or (2) performance or condition monitoring.

(vi) Excluding Fire Protection Components With Active Functions

The scope of the maintenance rule does not generally include installed fire protection systems, structures, and components because performance and condition monitoring is required by § 50.48. Therefore, for the purposes of license renewal, installed structures and components that perform active functions can be generically excluded

from an aging management review because they are either within the scope of § 50.65 or § 50.48. Compliance with § 50.48 is verified through the NRC inspection program.

The fire protection rule (§ 50.48) requires each nuclear power plant licensee to have in place a fire protection plan (FPP) that satisfies 10 CFR Part 50, Appendix A, Criterion 3. Licensees are required by § 50.48 to retain the FPP and each change to the plan until the Commission terminates the reactor license. The NRC reviews each licensee's total FPP as described in the licensee's safety analysis report (SAR), using basic review guidance described in § 50.48, as applicable to each plant.

The FPP establishes the fire protection policy for the protection of systems, structures, and components important to safety at each plant and the procedures, equipment, and personnel requirements necessary to implement the program at the plant site. The FPP is the integrated effort that involves systems, structures, and components, procedures, and personnel to carry out all activities of fire protection. The FPP includes system and facility design, fire prevention, fire detection, annunciation, confinement, suppression, administrative controls, fire brigade organization, inspection and maintenance, training, quality assurance, and testing.

The FPP is part of the CLB and contains maintenance and testing criteria that provide reasonable assurance that fire protection systems, structures, and components are capable of performing their intended function. The Commission concludes that it is appropriate to allow license renewal applicants to take credit for the FPP as an existing program that manages the detrimental effects of aging. The Commission concludes that installed fire protection components that perform active functions can be generically excluded from an aging management review on the basis of performance or condition-monitoring programs afforded by the FPP that are capable of detecting and subsequently mitigating the detrimental effects of aging.

(vii) Future Exclusion of Structures and Components on the Basis of NRC Requirements

As part of the ongoing regulatory process, the NRC evaluates emerging technical issues and, when warranted, establishes new or revised regulatory requirements as part of the resolution of a new technical issue, subject to the provisions of the backfit rule (§ 50.109). Increasing experience with aging

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nuclear power plants has led to the imposition or consideration of additional requirements. For example, at this time the Commission is considering rulemaking activities associated with steam generator performance and containment inspections. For steam generators, the Commission is considering the need for a performance-based rule to address steam generator tube integrity. To address concerns regarding containments and liners, the Commission is considering amending § 50.55(a) to incorporate the most recent version of Subsections IWE and IWL in the American Society of Mechanical Engineers (ASME) Code, Section XI.

These new requirements, if implemented, would be relevant to both aging management and the structures and components subject to an aging management review for license renewal (i.e., passive, long-lived structures and components). As a result, as part of relevant future rulemakings, the Commission intends to evaluate whether these new requirements can be considered effective in continuing to manage the effects of aging through any renewal term. A positive conclusion could establish the bases for further limiting the license renewal review.

e. Reaffirmation of Conclusions Concerning the Current Licensing Basis and Maintaining the Function of Systems, Structures, and Components

(i) Current Licensing Basis

As defined in § 54.3 of the rule, the CLB is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. A detailed explanation of the CLB, the regulatory processes underlying the CLB, compliance with the CLB, and consideration of the CLB is contained in the SOC for the previous license renewal rule (56 FR 64949; December 13, 1991). In summary, the conclusions made in the SOC for the previous rule remain valid. The CLB represents the evolving set of requirements and commitments for a specific plant that are modified as necessary over the life of a plant to ensure continuation of an adequate level of safety. The regulatory process is the means by which the Commission continually assesses the adequacy of and compliance with the CLB.

Compilation of the CLB is unnecessary to perform a license renewal review.

One commenter argued that the definition of CLB in § 54.3 should be clarified. Specifically, the commenter interprets that licensee written commitments made in docketed licensing correspondence such as responses to bulletins, generic letters, and enforcement actions and commitments in safety evaluations and licensee event reports (items in the third sentence of the definition) should be considered as part of the CLB only to the extent that these commitments reflect compliance with more formal requirements and regulations. These would include those elements of NRC requirements and regulations identified in the first two sentences of the definition. All other licensee commitments identified in those document types listed in the third sentence should not be considered CLB commitments if they are not otherwise necessary to demonstrate compliance with NRC requirements and regulations.

The Commission is aware of public concerns associated with the definition of CLB in § 54.3. Some of these concerns can be explicitly linked to what is meant by the term "written commitments" as it relates to the CLB. These concerns relate to ongoing consideration of the regulatory and licensee processes for defining, identifying, tracking, and validating licensee commitments. Although identified in the license renewal rulemaking process, many of these concerns are not directly associated with license renewal, but are relevant to current commitment management methods and practices. Therefore, the Commission is evaluating concerns associated with the definition of CLB in the context of currently operating reactors and may, in the future, determine that the definition of CLB needs to be clarified. Thus, the Commission concludes that, at this time, a revision to the definition of CLB is premature and will not be considered as part of this rulemaking.

In addition, the Commission concludes that, for the licensee renewal review, consideration of written commitments only need encompass those commitments that concern the capability of systems, structures, and components, identified in § 54.21(a), integrated plant assessment and § 54.21(c) time-limited aging analyses, to perform their intended functions, as delineated in § 54.4(b).

For the previous rule as well as for this rulemaking, commenters argued that the CLB of a number of plants is inadequate. Multiple examples of

operational concerns and issues at specific plants were identified to demonstrate the inadequacy of the CLBs. One commenter stated that the Yankee Rowe reactor pressure vessel problem (the plant was removed from service rather than show compliance with its CLB for its reactor pressure vessel) demonstrates the inadequacy of CLBs. The commenter stated that "the Rowe experience demonstrated that examination of the licensing basis for extended operation could jeopardize the remaining years on the current license."

The Commission did not agree with the comments on the previous rule in this area and comments received for this rulemaking did not provide compelling reasons to alter the previous Commission determinations. The examples cited were all identified by the NRC through the inspection and oversight processes. The identification of these issues through the regulatory process demonstrates that the Commission's programs are effective in identifying and resolving new technical and safety issues and areas of noncompliance in a timely fashion. In each example provided by the commenters, appropriate corrective action was taken or is being taken on a plant-specific or on an industry-wide basis to either modify the CLB to resolve the concern or to ensure the continued compliance with the present CLB. The Commission agrees that the Yankee Rowe case demonstrated that the regulatory process can jeopardize current operation during license renewal activities. The decision to retire the Yankee Rowe plant was a utility economic decision when faced with the prospect of demonstrating continued compliance with its CLB. Non-compliance with the CLB, while not shown in the Rowe example, is one of the reasons that justifies the existence of the regulatory process.

Public Citizen stated that the Commission's contention that all reactors are in compliance with their CLBs is both arbitrary and capricious and neither stands the test of logic nor reality. The commenter continued by stating that the "NRC's assumption is based upon the specious argument that having operated without a meltdown for a finite period of time means that safety is adequate."

The Commission does not contend that all reactors are in full compliance with their respective CLBs on a continuous basis. Rather, as discussed in the SOC for the previous rule, the regulatory process provides reasonable assurance that there is compliance with the CLB. The NRC conducts its inspection and enforcement activities

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under the presumption that non-compliances will occur.

The Commission does not believe that an absence of accidents over a given period of time equates to adequate safety. Neither does the Commission believe that all risk can be eliminated. Adequate safety is a subjective term that cannot be directly measured. The Commission's performance indicators demonstrate that, while not quantifiable, relative safety levels are increasing. An absence of accidents over a finite period of time can be considered as just one safety performance indicator. Despite improving performance indicators, the Commission intends to continue the meticulous process of insuring and maintaining an adequate level of protection.

Commenters for both the previous rule and for this rulemaking argued that the plant-specific CLB should be compiled and the NRC should verify compliance with the CLB as part of the license renewal process. Public Citizen stated that "The NRC must review the documents which make up the current licensing basis and examine the plant itself in order to determine whether the licensee has complied with the current licensing basis," and further, submission of the documents, and NRC verification of the licensee's compliance with its CLB is necessary to avoid "fraud and abuse." Public Citizen also contends that "[a]bsent the submission of the documents the public and the Commission are left to examine the reactor's license renewal application and the IPA in a vacuum."

The Commission disagrees with the commenter, and points out that the proposed rule did not explicitly require the renewal applicant to compile the CLB for its plant. The Commission rejected a compilation requirement for the previous license renewal rule for the reasons set forth in the accompanying SOC (56 FR at 64952). The Commission continues to believe that a prescriptive requirement to compile the CLB is not necessary. Furthermore, submission of documents for the entire CLB is not necessary for the Commission's review of the renewal application. As stated in section III.b(i) of this SOC, the Commission has determined that the single issue generic to all plants with regard to license renewal is the effects of age-related degradation during the period of extended operation. As explained in the SOC for the previous rule, section IV.c(i) (56 FR at 64948), the CLB of any plant is comprised of numerous regulations, license conditions, the design basis, etc. As discussed in III(e)(ii), "Maintaining the function of systems, structures, and

components," the portion of the CLB that can be impacted by the detrimental effects of aging is the design basis. Thus, there is no compelling reason to consider, for license renewal, any portion of the CLB other than that which is associated with the structures and components of the plant (i.e., that part of the CLB that can suffer detrimental effects of aging). All other aspects of the CLB have continuing relevance in the license renewal period as they do in the original operating term, but without any association with an aging process that may cause invalidation. From a practical standpoint, an applicant must consult the CLB for a structure or component in order to perform an aging management review. The CLB for the structure or component of interest contains the information describing the functional requirements necessary to determine the presence of any aging degradation.

The definition of CLB in § 54.3(a) states that a plant's CLB consists, in part, of "a licensee's written commitments * * * that are docketed * * *". Because these documents have already been submitted to the NRC and are in the docket files for the plant, they are not only available to the NRC for use in the renewal review, they are also available for public inspection and copying in the Commission's public document rooms. Furthermore, the NRC may review any supporting documentation that it may wish to inspect or audit in connection with its renewal review. If the renewed license is granted, those documents continue to remain subject to NRC inspection and audit throughout the term of the renewed license. The Commission continues to believe that resubmission of the documents constituting the CLB is unnecessary. With respect to the commenter's argument that the CLB needs to be verified, the Commission had concluded when it adopted the previous license renewal rule that a reverification of CLB compliance as part of the renewal review was unnecessary (56 FR at 64951-52). Public Citizen presented no information questioning the continuing soundness of the Commission's rationale, and the Commission reaffirms its earlier conclusion that a special verification of CLB compliance in connection with the review of a license renewal application is unnecessary. The Commission intends, as stated by the commenter, to examine the plant-specific CLB as necessary to make a licensing decision on the continued functionality of systems, structures, and components subject to an aging management review

and a license renewal evaluation. This activity will likely include examination of the plant itself to understand and verify licensee activities associated with aging management reviews and actions being taken to mitigate detrimental effects of aging.

After consideration of all comments concerning the compilation of the CLB, the Commission has reconfirmed its conclusion made for the previous rule that it is not necessary to compile, review, and submit a list of documents that comprise the CLB in order to perform a license renewal review.

(ii) Maintaining the Function of Systems, Structures, and Components

As discussed in the SOC for the previous license renewal rule, the Commission stated that continued safe operation of a nuclear power plant requires that systems, structures, and components that perform or support safety functions continue to perform in accordance with the applicable requirements in the licensing basis. In addition, the Commission stated that the effects of ARDUTLR must be mitigated to ensure that the aged systems, structures, and components will adequately perform their designed safety or intended function.

In developing this final rule, a key issue that the Commission considered was whether or not a focus on ensuring a system's, structure's or component's function through performance or condition monitoring is a sufficient basis for concluding that the CLB will be maintained throughout the period of extended operation. The Commission considered whether the regulatory process and a focus on functionality during the license renewal review for the period of extended operation are sufficient to provide reasonable assurance that an acceptable level of safety (i.e., the CLB) will be maintained.

Continued safe operation of a commercial nuclear power plant requires that systems, structures, and components that perform or support safety functions continue to function in accordance with the applicable requirements in the licensing basis of the plant and that others do not substantially increase the frequency of challenges to those required for safety. As a plant ages, a variety of aging mechanisms are operative, including erosion, corrosion, wear, thermal and radiation embrittlement, microbiologically induced aging effects, creep, shrinkage, and possibly others yet to be identified or fully understood. However, the detrimental effects of aging mechanisms can be observed by detrimental changes in the performance

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characteristics or condition of systems, structures, and components if they are properly monitored.

Aging can affect all systems, structures, and components to some degree. Generally, the changes resulting from detrimental aging effects are gradual. Licensees have ample opportunity to detect these degradations through performance and condition monitoring programs, technical specification surveillances required by § 50.36, and other licensee maintenance activities. Except for some well-understood aging mechanisms such as neutron embrittlement and intergranular stress corrosion cracking, the straightforward approach to detecting and mitigating the effects of aging begins with a process that verifies that the intended design functions of systems, structures, and components have not been compromised or degraded. Licensees are required by current regulations to develop and implement programs that ensure that conditions adverse to quality, including degraded system, structure, or component function, are promptly identified and corrected. The licensees' programs include self-inspection, maintenance, and technical specification surveillance programs that monitor and test the physical condition of plant systems, structures, and components.

For example, technical specifications include limiting conditions for operation (LCOs), which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Technical specifications also require surveillance requirements relating to test, calibration, or inspection to verify that the necessary quality of systems, structures, and components is maintained, that facility operation is within safety limits, and that LCOs continue to be met. Furthermore, § 50.55a requires, in part, that systems, structures, and components be tested and inspected against quality standards commensurate with the importance of the safety function to be performed, such as inservice testing (IST) and inservice inspections (ISIs) of pumps and valves.

Elements for timely mitigation of the effects of age-related degradation include activities that provide reasonable assurance that systems, structures, and components will perform their intended functions when called on. Through these programs, licensees identify the degradation of components resulting from a number of different environmental stressors as well as degradation from inadequate maintenance or errors caused by

personnel. Once a detrimental performance or condition caused by aging or other factors is revealed, mitigating actions are taken to fully restore the condition to its original design basis. As a result of these programs, degradation due to aging mechanisms (detrimental aging effects) is currently being adequately managed, either directly or indirectly, for most systems, structures, and components.

Consequently, there is considerable logic in ensuring that the design basis (as defined in § 50.2) of systems, structures, and components is maintained through activities that ensure continued functionality. This process, including surveillance, is relied on in the current term to ensure continued operability, (i.e., to the greatest extent practicable, the intended design functions will be properly performed). The focus on maintaining functionality results in the continuing capability of systems, structures, and components, including supporting systems, structures, and components, to perform their intended functions as designed.

A key element of the 10 CFR 54 definition of the CLB is the plant-specific design-basis information defined in 10 CFR 50.2. According to this definition, "[d]esign bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design." In addition, design bases identify specific functions to be performed by a system, structure, and component, and design-basis values may be derived for achieving functional goals. For plant systems, structures, and components that are not subject to performance or condition-monitoring programs or for those on which the detrimental effects of aging may not be as readily apparent, verification of specific design values (e.g., piping wall thickness) or demonstration by analysis can be a basis for concluding that the required function(s) will be maintained in the period of extended operation.

When the design bases of systems, structures, and components can be confirmed either indirectly by inspection or directly by verification of functionality through test or operation, a reasonable conclusion can be drawn that the CLB is or will be maintained. This conclusion recognizes that the portion of the CLB that can be impacted by the detrimental effects of aging is limited to the design-bases aspects of the CLB. All other aspects of the CLB, e.g., quality assurance, physical

protection (security), and radiation protection requirements, are not subject to physical aging processes that may cause noncompliance with those aspects of the CLB.

Although the definition of CLB in Part 54 is broad and encompasses various aspects of the NRC regulatory process (e.g., operation and design requirements), the Commission concludes that a specific focus on functionality is appropriate for performing the license renewal review. Reasonable assurance that the function of important systems, structures, and components will be maintained throughout the renewal period, combined with the rule's stipulation that all aspects of a plant's CLB (e.g., technical specifications) and the NRC's regulatory process carry forward into the renewal period, are viewed as sufficient to conclude that the CLB (which represents an acceptable level of safety) will be maintained. Functional capability is the principal emphasis for much of the CLB and is the focus of the maintenance rule and other regulatory requirements to ensure that aging issues are appropriately managed in the current license term.

An example of performance verification activities that must be performed by licensees is the loss of coolant accident (LOCA)/loss of offsite power (LOOP) integrated tests. This technical specification surveillance is typically required to be performed at least once every 18 months. This test simulates a coincident LOCA/LOOP (design-basis accident) for each train or division of emergency alternating current (ac) power source (e.g., emergency diesel generators), the associated emergency core cooling systems (e.g., safety injection subsystems), and other electrically driven safety components (e.g., containment isolation valves, emergency ventilation/filtration components, and auxiliary feedwater components). All engineered safety features required to actuate for an actual LOCA/LOOP are required to actuate for the test and either duplicate the LOCA/LOOP function completely (e.g., electric loads are sequenced onto emergency busses, containment isolation valves actually shut from fully open positions) or approximate the actual function to the greatest extent practicable (e.g., safety injection pumps start and run in recirculation mode instead of actually injecting water into the reactor coolant system). Design-basis values that can only be measured during this testing, such as load sequence times and emergency bus voltage response to the sequenced loads, are directly verified.

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Between integrated tests, monthly and quarterly surveillances verify specific component performance criteria such as emergency diesel generator start times or pump flow values. The acceptance criteria stated in the surveillance requirements are derived from design-basis values with appropriate conservatism built in to account for any uncertainties or measurement tolerances. Satisfactory accomplishment and periodic repetition of these types of surveillance provide reasonable assurance that system, structure, and component functions will be performed as designed.

f. Integrated Plant Assessment

The previous license renewal rule required license renewal applicants to perform a systematic screening of plant systems, structures, and components to ultimately determine if aging would be adequately managed in the period of extended operation. This IPA process would begin broadly and consider all plant systems, structures, and components. The IPA would then focus on only those that are important to license renewal and finally on only those structures and components that could be subject to ARDUTLR. For those structures and components subject to ARDUTLR, the IPA process required an evaluation and demonstration that either (1) new programs or licensee actions would be implemented to prevent or mitigate any ARDUTLR during the period of extended operation or (2) justifies that no actions are necessary.

On the basis of experience gained from implementation of the previous license renewal rule, the Commission determined that the previous rule required the evaluation of an unnecessarily large number of plant systems, structures, and components to establish appropriate aging management in the period of extended operation. This experience, further consideration of existing activities, and the recent adoption of the maintenance rule have led the Commission to conclude that many of these systems, structures, and components are already subject to activities that ensure their function through any period of extended operation. Therefore, the Commission is amending the IPA process in this rulemaking to more efficiently focus the license renewal review on certain structures and components for which the regulatory process and existing licensee programs and activities may not adequately manage the detrimental effects of aging in the period of extended operation.

The approach reflected in this rule maintains the requirement for each renewal applicant to address possible detrimental effects of aging for certain systems, structures and components during the period of extended operation through the IPA process. The rule will simplify the IPA process consistent with (1) the Commission's determination that the aging management review should focus on ensuring that structures and components perform their intended function(s) and (2) the additional experience the Commission has gained related to aging management review since publishing the current license renewal rule.

The IPA process continues to require an initial review of all plant systems, structures, and components to identify the scope of structures and components requiring aging management review for license renewal. The principal differences between the IPA process in the previous license renewal rule and the IPA process in this rule is—

(1) The determination of the reduced set of structures and components that must undergo an aging management review;

(2) The form of the aging management review (managing the effects of aging on functionality versus managing aging mechanisms); and

(3) The elimination of the term, "ARDUTLR".

(i) Determination of Structures and Components Requiring Aging Management Review for License Renewal

In the SOC for the previous license renewal rule, the Commission stated that, as it gains more experience with age-related degradation reviews, it may revisit the need for such a disciplined review process and may narrow the scope of the safety review. The Commission now believes that after reviewing its recent implementation experience, a narrower scope of review is warranted. The Commission concludes that a generic exclusion from aging management review is appropriate for those categories of structures and components subject to existing programs and activities that the Commission believes are sufficient to provide reasonable assurance of continued function in the period of extended operation.

As discussed in Section III.d of this SOC, the Commission has determined that the existing regulatory process, existing licensee programs and activities, and the maintenance rule provide the basis for generically excluding structures and components that perform active functions from an

aging management review. However, the Commission does not believe that it can generically exclude structures and components that—

(1) Do not have performance and condition characteristics that are as readily monitorable as active components; and

(2) Are not subject to periodic, planned replacement.

Unlike the extensive experience associated with the performance and condition monitoring of the active functions of structures and components, little experience has been gained from the evaluation of long-term effects of aging on the passive functions of structures and components. The Commission considers that the detrimental effects of aging affecting passive functions of structures and components are less apparent than the detrimental effects of aging affecting the active functions of structures and components. Therefore, the Commission concludes that a generic exclusion for passive structures and components is inappropriate at this time. The Commission also concludes that an aging management review of the passive functions of structures and components is warranted to provide the reasonable assurance that their intended functions are adequately maintained during the period of extended operation. Additional experience with managing the effects of aging on the function of these structures and components may narrow the selection of structures and components requiring an aging management review for license renewal in the future.

New Jersey commented that since so much of original plant design assumed 40 years of service, utilities should be required to determine the actual conditions of systems, structures, and components at the 40-year point "license renewal milestone."

The focus of the license renewal rule on passive, long-lived structures and components conforms to the commenter's concern. For a licensee to perform an effective aging management review of long-lived, passive structures and components identified in the IPA, a logical starting point for a given structure or component may be to assess its current condition against the CLB via a "one time" inspection. Although this assessment is not specifically required by the rule, the licensee must demonstrate that the effects of aging will be managed so that the intended function(s) will be maintained for the period of extended operation. If a licensee chooses not to perform a "one time" inspection or similar assessment for a particular structure or component,

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the aging management review must still adequately demonstrate that detrimental effects of aging will be managed during the period of extended operation.

(a) "Passive" Structures and Components

In Section III.d of this SOC, the Commission concluded that structures and components that perform active functions can be generically excluded from an aging management review on the basis of performance or condition-monitoring programs. The Commission recognizes that structures and components that have passive functions generally do not have performance and condition characteristics that are as readily monitorable as those that perform active functions. Therefore, the Commission concludes that an aging management review is required for structures and components within the scope of the license renewal rule that perform passive intended functions.

The Commission has reviewed several industry concepts of "passive" structures and components and has determined that they do not accurately describe the structures and components that should be subject to an aging management review for license renewal. Accordingly, the Commission has developed a description of "passive" characteristics of structures and components. Furthermore, the Commission has directly incorporated these characteristics into the IPA process to avoid the creation of a new term, "passive." This SOC uses the term "passive" for convenience.

Furthermore, the description of "passive" structures and components incorporated into § 54.21(a) should be used only in connection with the IPA review in the license renewal process.

The Commission has determined that passive structures and components for which aging degradation is not readily monitored are those that perform an intended function without moving parts or without a change in configuration or properties. For example, a pump or valve has moving parts, an electrical relay can change its configuration, and a battery changes its electrolyte properties when discharging. Therefore, the performance or condition of these components is readily monitored and would not be captured by this description. Further, the Commission has concluded that "a change in configuration or properties" should be interpreted to include "a change in state," which is a term sometimes found in the literature relating to "passive." For example, a transistor can "change its state" and therefore would not be screened in under this description.

Structures or components may have active functions, passive functions, or both. For example, although a pump or a valve has some moving parts, a pump casing or valve body performs a pressure-retaining function without moving parts. A pump casing or a valve body meets the Commission's description and would therefore be considered for an aging management review. However, the moving parts of the pump, such as the pump impeller, would not be subject to aging management review. Additionally, the maintenance rule implementation guidance (Regulatory Guide 1.160) contains a provision by which licensees may classify certain systems, structures, and components (e.g., raceways, tanks, and structures) as, "inherently reliable." Inherently reliable systems, structures, and components by definition generally do not require any continuing maintenance actions and should be considered as "passive."

As examples of the implementation of this screening requirement, the Commission considers structures and components meeting the passive description as including, but not limited to, the reactor vessel, the reactor coolant system pressure boundary, steam generators, the pressurizer, piping, pump casings, valve bodies, the core shroud, component supports, pressure retaining boundaries, heat exchangers, ventilation ducts, the containment, the containment liner, electrical and mechanical penetrations, equipment hatches, seismic Category I structures, electrical cables and connections, cable trays, and electrical cabinets.

Additionally, the Commission determined that structures and components that perform active functions are not subject to an aging management review (e.g., pumps (except casing), valves (except body), motors, diesel generators, air compressors, snubbers, the control rod drive, ventilation dampers, pressure transmitters, pressure indicators, water level indicators, switchgears, cooling fans, transistors, batteries, breakers, relays, switches, power inverters, circuit boards, battery chargers, and power supplies). However, pressure-retaining boundaries (e.g., pump casings, valve bodies, fluid system piping) and structural supports (e.g., diesel generator structural supports) that are necessary for the structure or component to perform its intended function meet the description of passive, and will be subject to an aging management review.

A commenter requested clarification as to whether the Commission intended pressure boundaries, other than the

reactor coolant pressure boundary, to be included in an aging management review (e.g., pressurized water reactor main steam lines). The Commission does not limit the consideration of pressure boundaries for an aging management review to only the reactor coolant pressure boundary. All pressure retaining boundaries necessary for the performance of the intended functions delineated in § 54.4 would be subject to an aging management review. For example, those portions of a plant's main steam lines that meet the intended function criteria of § 54.4 would be included in an aging management review.

One commenter expressed a belief that cables were prematurely included as "passive" and should not be subject to an aging management review. The commenter stated that the only aging effects of cables are shorting and loss of continuity, and for cables not in a harsh environment, these effects would be immediately detected during normal operation or functional testing. The Commission considers the examples of electrical components (e.g., electrical cables, connections, and electrical penetrations) listed in 10 CFR 54.21(a)(1)(i) and Section III.f(i)(a) of the SOC to be properly categorized as "passive" because they perform their intended function without moving parts or without a change in configuration or properties and the effects of aging degradation for these components are not readily monitorable. The Commission also believes that this categorization is not premature as stated by the commenter.

The Commission disagrees with the commenter's assertion that the aging effects of cable make it easy to monitor functional degradation. Although there have been significant advances in this area, there is no single method or combination of methods that can provide the necessary information about the condition of electrical cable currently in service regarding the extent of aging degradation or remaining qualified life. Degradation due to aging of electrical cables caused by elevated temperature and radiation can cause embrittlement in the form of cracking of insulation and jacket materials. The cracks degrade the electrical properties of the insulation materials. The major concern is that failures of deteriorated cable systems (cables, connections, and penetrations) might be induced during accident conditions. Because these components are relied on to remain functional during and following design-basis events (including conditions of normal operation) and there are currently no known effective methods

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for continuous monitoring of cable systems, these examples of passive electrical components subject to an aging management review will remain in 10 CFR 54.21(a)(1)(i) and Section III f(i)(a) of the SOC.

(b) "Long-Lived" Structures and Components

The Commission recognizes that, as a general matter, the effects of aging on a structure or component are cumulative throughout its service life. One way to effectively mitigate these effects is to replace that structure or component, either (i) on a specified interval based upon the qualified life of the structure or component or (ii) periodically in accordance with a specified time period to prevent performance degradations leading to loss of intended function during the period of operation.

Where a structure or component is replaced based upon a qualified life (appropriately determined), it follows that the replaced structure or component will not experience detrimental effects of aging sufficient to preclude its intended function. This is because the purpose of qualification of the life of a structure or component is to determine the time period for which the intended function of that structure or component can be reasonably assured.

Where a structure or component is replaced periodically in accordance with a specified time period, the regulatory process will ensure that degraded performance of the structure or component experienced during the replacement interval will be adequately addressed and the established replacing interval will be appropriate. Thus, there is a high likelihood that the detrimental effects of aging will not accumulate during the subsequent period such that there is a loss of intended function.

In sum, a structure or component that is not replaced either (i) on a specified interval based upon the qualified life of the structure or component or (ii) periodically in accordance with a specified time period, is deemed by § 54.21(a)(1)(ii) of this rule to be "long-lived," and therefore subject to the § 54.21(a)(3) aging management review.

It is important to note, however, that the Commission has decided not to generically exclude passive structures and components that are replaced based on performance or condition from an aging management review. Absent the specific nature of the performance or condition replacement criteria and the fact that the Commission has determined that components with "passive" functions are not as readily monitorable as components with active

functions, such generic exclusion is not appropriate. However, the Commission does not intend to preclude a license renewal applicant from providing site-specific justification in a license renewal application that a replacement program on the basis of performance or condition for a passive structure or component provides reasonable assurance that the intended function of the passive structure or component will be maintained in the period of extended operation.

A commenter recommended that the Commission exclude specific components from an aging management review if they have been replaced in the later years of the original license or if they are subject to routine testing. The Commission believes that one-time component replacements and replacements based on routine testing are essentially replacements based on performance or condition. Absent the specific nature of the performance or condition replacement criteria (e.g., routine testing program) it is not appropriate for the Commission to generically exclude all such replacement programs of passive structures and components. However, the Commission does not preclude a license renewal applicant from providing a plant-specific justification in a license renewal application that a one-time replacement program or replacement program on the basis of routine testing of passive structures and components provides reasonable assurance that functionality will be maintained in the period of extended operation.

A commenter requested that the Commission provide an example of a performance- or condition-based replacement program that could be used to justify that aging effects will be adequately managed during the period of extended operation. While an exact application of a performance or condition replacement is necessarily dependent on plant-specific situations and their respective aging effects of concern, the Commission would generally expect that such a replacement program would have defined performance or condition measuring methods (e.g., wall thickness of heat exchanger tubes), an established monitoring frequency that supports timely discovery of degraded conditions (e.g., every refueling outage), and an appropriate replacement criterion (e.g., upon reaching a specified number of tubes plugged).

One commenter stated that the Commission should consider dividing long-lived passive structures and components into two categories: those

that have a less rigorous approach to oversight and maintenance and those that have a sufficiently high level of licensee programs and regulatory oversight. The commenter then suggests that the rule should recognize the quality and effectiveness of the programs in the second category and appropriately credit them relative to an aging management review. Specifically, the commenter provided the reactor coolant pressure boundary as an example of a passive, long-lived component for which rigorous programs and regulatory oversight currently exist to adequately manage the effects of aging. Currently, the Commission believes it would be too difficult to further divide the structures and components required for an aging management review into those passive, long-lived structures and components "rigorously" managed and those "not as rigorously" managed. The variations among plant specific designs and programs make such a determination unmanageable at present. However, as the Commission gains more experience with industry activities for management of passive, long-lived structures and components, it may consider further narrowing the scope of those structures and components requiring an aging management review. With regard to the commenter's specific example of the reactor coolant pressure boundary, because of its high-risk significance, the differences in plant-specific design and operational histories, and the lack of operating experience beyond the original operating terms, the Commission does not believe it appropriate to generically exclude the reactor coolant pressure boundary from an aging management review.

(ii) The IPA Process

The Commission revised and simplified the IPA requirements (§ 54.21(a)) as follows:

First, instead of listing those systems, structures, and components that are important to license renewal, only a list is required (from those systems, structures, and components within the scope of license renewal) of structures and components that a licensee determines to be subject to an aging management review for the period of extended operation. A licensee has the flexibility to determine the set of structures and components for which an aging management review is performed, provided that this set encompasses the structures and components for which the Commission has determined an aging management review is required for the period of extended operation.

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Therefore, a licensee's aging management review must include structures and components—

(1) That were not subject to replacement based on a qualified life or a specified time period; and

(2) That perform an intended function (§ 54.4) without moving parts or without a change in configuration or properties.

In establishing this flexibility, the Commission recognizes that licensees may find it preferable to not take maximum advantage of the Commission's generic conclusion regarding structures and components that do not require an aging management review, and may undertake a broader scope of review than is minimally required. For example, a licensee may desire to review all "passive" structures and components. This set of structures and components would be acceptable because it includes "long-lived" as well as periodically replaced structures and components and, therefore, encompasses all structures and components that would be identified through criteria (1) and (2) above.

Second, the IPA must contain a description of the methodology used to determine those systems, structures, and components within the scope of license renewal and those structures and components subject to an aging management review.

Third, the IPA must contain a demonstration, for each structure and component subject to an aging management review, that the effects of aging will be managed so that the intended function(s) will be maintained for the period of extended operation. This demonstration must include a description of activities, as well as any changes to the CLB and plant modifications that are relied on to demonstrate that the intended function(s) will be adequately maintained despite the effects of aging in the period of extended operation.

A commenter suggested that the regulatory text include a more comprehensive list of components subject to an aging management review in order to clarify its intent. The Commission decided that not to include a more detailed list of components subject to an aging management review. Components subject to an aging management review are highly plant specific and the Commission does not intend to establish plant-specific lists by regulation. However, the Commission will include additional clarification and examples of components requiring an aging management review in its implementation guidance for the rule.

DOE commented that the wording in § 54.21(a)(3), requiring a demonstration that the effects of aging will be managed so that the intended function(s) will be maintained, could be interpreted too restrictively. Specifically, DOE asserts that the IPA process serves to demonstrate that a structure or component will perform in a manner consistent with the CLB rather than to provide "absolute" assurance that the structure or component will not fail. Therefore, DOE recommends revising § 54.21(a)(3) to include requiring a demonstration that the effects of aging are "adequately managed" and that the intended functions are maintained, "to the extent required by the CLB."

The Commission agrees with DOE that the IPA process is not intended to demonstrate absolute assurance that structures or components will not fail, but rather that there is reasonable assurance that they will perform such that the intended functions, as delineated in § 54.4, are maintained consistent with the CLB. The Commission has clarified the wording in § 54.21(a)(3) to require a demonstration that the effects of aging be adequately managed so that the intended function(s) will be maintained consistent with the CLB.

One commenter suggested that the amendment provides more uncertainty as to which structures and components should be considered for an aging management review. Specifically, the commenter cited fasteners as an example of what is important but appears not to be considered in the proposed rule. The commenter states that the NRC should provide more detailed guidance.

The Commission does not agree that the rule provides more uncertainty with regard to what structures and components should be considered. In fact, the rule provides clear criteria for what types of structures and components must be subject to an aging management review—namely passive, long-lived structures and components from those determined to be within the scope of license renewal. With regard to the specific example of fasteners cited by the commenter, the rule would require an aging management review for fasteners because fasteners are considered to be passive and if the fasteners (1) were determined to be within the scope of license renewal as defined in § 54.4 and (2) were determined not to be subject to periodic replacement or replacement based on a qualified fastener life. As in the previous rule, this rule does not delineate a comprehensive list of the specific structures and components that

must be considered for an aging management review.

g. Time-Limited Aging Analyses and Exemptions

(i) Time-Limited Aging Analyses

The definition of ARDUTLR in the previous license renewal rule requires a licensee evaluation and NRC approval of previous time-limited aging analyses for systems, structures, and components within the scope of license renewal that either were based on an assumed service life or a period of operation defined by the original license term. For example, certain plant-specific safety analyses may have been based on an explicitly assumed 40-year plant life (e.g., aspects of the reactor vessel design). As a result, an evaluation for license renewal would be required. Those time-limited aging analyses that need to be evaluated for renewal are limited to those analyses with (i) time-related assumptions, (ii) utilized in determining the acceptability of systems, structures, and components within the scope of license renewal (as defined in Section 54.4), (iii) which are based upon a period of plant operation equal to or greater than the current license term, but less than the cumulative period of plant operation (*viz.*, the existing license term plus the period of extended operation requested in the renewal application). Time-limited aging analyses based on an assumed period of plant operation short of the current operating term should be addressed within the original license and need not be reviewed for license renewal.

Because the Commission deleted the term of ARDUTLR, this license renewal rule identifies these explicit time-limited analyses as issues that must be clearly addressed within the license renewal process. This rule explicitly requires that—

(1) Applicants perform an evaluation of time-limited aging issues relevant to systems, structures, and components within the scope of license renewal in the license renewal application; and

(2) The adequate resolution of time-limited aging analysis issues as part of the standards for issuance of a renewed license.

The time-limited provisions or analyses of concern are those that—

(1) Involve the effects of aging;

(2) Involve time-limited assumptions defined by the current operating term, for example, 40 years;

(3) Involve systems, structures, and components within the scope of license renewal;

(4) Involve conclusions or provide the basis for conclusions related to the

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capability of the system, structure, and component to perform its intended functions;

(5) Were determined to be relevant by the licensee in making a safety determination; and

(6) Are contained or incorporated by reference in the CLB.

The applicant for license renewal will be required in the renewal application to—

(1) Justify that these analyses are valid for the period of extended operation;

(2) Extend the period of evaluation of the analyses such that they are valid for the period of extended operation, for example, 60 years; or

(3) Justify that the effects of aging will be adequately managed for the period of extended operation if an applicant cannot or chooses not to justify or extend an existing time-limited aging analysis.

The Commission considers analyses to be "relevant" if the analyses provided the basis for the licensee's safety determination and, in the absence of the analyses, the licensee may have reached a different safety conclusion. Time-limited aging analyses that need to be addressed in a license renewal evaluation are not necessarily those analyses that have been previously reviewed or approved by the Commission. The following examples illustrate time-limited aging analyses that need to be addressed and were not previously reviewed and approved by the Commission.

(1) The FSAR states that the design complies with a certain ASME Code requirement. A review of the ASME Code requirement reveals that a time-limited aging analysis is required. The actual calculation was performed by the licensee to meet code requirements. The specific calculation was not referenced in the FSAR and the NRC had not reviewed the calculation.

(2) In response to a generic letter, a licensee submitted a letter to the NRC committing to perform a time-limited aging analysis that would address the concern in the generic letter. The NRC had not documented a review of the licensee's response and had not reviewed the actual analysis.

The Commission expects that the number of time-limited aging analyses that need to be addressed in a license renewal evaluation is relatively small. Although the number and type will vary depending on the plant-specific CLB, these analyses could include reactor vessel neutron embrittlement (pressurized thermal shock, upper-shelf energy, surveillance program), concrete containment tendon prestress, metal fatigue, environmental qualification

(EQ) of electrical equipment, metal corrosion allowance, inservice flaw growth analyses that demonstrate structural stability for 40 years, inservice local metal containment corrosion analyses, and high-energy line-break postulation based on fatigue cumulative usage factor.

Three issues were raised by five commenters relating to time-limited aging analyses in the proposed rule.

(1) The proposed rule contains a definition of time-limited aging analyses in § 54.3 which is further discussed in the proposed SOC. However, the proposed rule definition appeared to contain two criteria in defining time-limited aging analyses while the discussion in the proposed SOC appeared to contain six criteria. Three commenters indicated that there may be potential inconsistencies between the proposed rule definition and the proposed SOC. The commenters recommended various methods for incorporating the SOC language in the rule.

The proposed SOC discussion was intended to further clarify the criteria contained in the proposed rule definition. After reviewing the comments, the Commission has decided to replace the proposed definition of time-limited aging analyses in § 54.3 with the six criteria in the proposed SOC as recommended.

(2) One commenter recommended reconsideration of all proposed plant modifications which were not imposed by the Commission due to a cost-benefit analysis that had time-dependent factors. The commenter suggested that this should include any backfits which the Commission declined to impose, as well as potential plant modifications to reduce risk identified in programs such as the individual plant examination (IPE) and the individual plant examination of external events (IPEEE) for severe accident vulnerabilities.

The Commission does not regard such reconsideration to be necessary to provide reasonable assurance that there is no undue risk to the public health and safety for the period of extended operation of nuclear power plants.

As discussed in the SOC for the previous license renewal rule (56 FR 64943 at 64948), in NUREG-0933, A Prioritization of Generic Safety Issues, the NRC examined 249 generic safety issues (GSIs) that had been resolved through October 1990, in order to identify possible cases where consideration of the additional period of operation during the renewal term might have altered the NRC's regulatory decision not to undertake additional action. Of the 139 GSIs resolved through

October 1990 that did not result in backfits, the Commission found that only 3 issues for which a reexamination of the backfit determination appeared to be prudent. In two instances, the reexamination confirmed the appropriateness of the no backfit conclusion for an additional 20 years of operation beyond the original 40-year license term. The third issue (GSI Item III.A.1.3 "Maintain Supply of Thyroid Blocking Agent") had been placed in the resolution process for reasons apart from license renewal. Thus, cost-benefit analyses of the resolved GSIs were relatively insensitive to consideration of the period of extended operation. The cost-benefit methodologies utilized in resolution of GSIs are the same as those used by the NRC in conjunction with the full gamut of regulatory actions involving nuclear power plants, including rulemaking and enforcement. Since the methodologies are the same, the Commission believes that the results of NUREG-0933 can be reasonably extrapolated to other regulatory assessments where backfits were not imposed on the basis of cost-benefit analyses limited to 40 years of operation. Furthermore, cost-benefit considerations simply do not come into play in backfit determinations involving adequate protection—except in selecting among different ways of achieving adequate protection, as is acknowledged in 10 CFR 50.109(a)(7). The IPE and IPEEE are licensees' studies to search for plant vulnerabilities to internal and external events. As such, the IPE and IPEEE are not intended to identify or address matters involving adequate protection and, to date, no such issues have been identified.

(3) Two commenters recommended clarifying that the requirement of time-limited aging analyses does not apply to a component that is replaced based on a qualified life less than the full original license term. The commenters cited the EQ of electrical equipment pursuant to § 50.49 as a specific example. This type of equipment is replaced during the current license term and will continue to be replaced during the renewal term based on its qualified life.

The Commission's intent for the requirement of time-limited aging analyses is to capture, for renewal review, certain plant-specific aging analyses that are explicitly based on the duration of the current operating license of the plant. The Commission's concern is that these aging analyses do not cover the period of extended operation. Unless these analyses are evaluated, the Commission does not have assurance that the systems, structures, and components addressed by these

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analyses can perform their intended function(s) during the period of extended operation. The periodic replacement program discussed in the previous paragraph would ensure that the subject component can perform its intended function(s) during the period of extended operation. Thus, the Commission agrees with the commenters that components replaced based on qualified lives less than the duration of the current license term need not be addressed under time-limited aging analyses for renewal if the scheduled replacement continues to be performed in the period of extended operation. This is consistent with the definition of time-limited aging analyses in § 54.3.

(ii) Exemptions

The previous license renewal rule required that an applicant for license renewal provide a list of all plant-specific exemptions granted under 10 CFR 50.12. An evaluation that justifies the continuation of the exemptions for the renewal term must be provided for exemptions that were either granted on the basis of an assumed service life or a period of operation bounded by the original license term of the facility or otherwise related to systems, structures, or components subject to ARDUTLR.

With the deletion of the definition of ARDUTLR and the corresponding addition of a separate time-limited aging analysis requirement, the Commission has included this exemption review with the separate time-limited aging analysis requirement in § 54.21(c). This change is consistent with the Commission's intent to review exemptions based on time-limited aging analyses under the current rule.

Two commenters questioned the proposed requirement to list and evaluate all granted exemptions, including those that are no longer in effect. One commenter recommended that only exemptions in effect at the time of renewal application and continuing into the period of extended operation should be considered for renewal. Further, the other commenter indicated that requiring a listing of all exemptions is inconsistent with the removal of other lists currently required in 10 CFR 54, such as the list of systems, structures, and components important to license renewal, to provide applicants flexibility in developing suitable methodologies to implement the requirements of § 54.21. The Commission agrees with the commenters. Exemptions that have expired are no longer part of the CLB for that plant. Further, a requirement to list all exemptions in effect is unnecessary

because the only exemptions of concern for license renewal are those that have time-limited aging analyses.

Thus, the Commission has revised § 54.21(c)(2) to require a listing of only those exemptions in effect at the time of renewal application that are based on time-limited aging analyses as defined in § 54.3.

The Commission will rely on explicit wordings in the granted exemptions to determine if an exemption is in effect at the time of renewal application. The Commission will not require an exemption to be considered for license renewal if the exemption was granted with an explicit expiration date that has passed prior to the renewal application. However, the Commission will require exemptions granted without explicit expiration dates to be considered for renewal. If an applicant believes that a certain exemption has expired and yet the supporting documentation does not have a clearly stated expiration date, the applicant should update its CLB prior to submitting its renewal application to clearly indicate that the exemption has expired.

h. Standards for Issuance of a Renewed License and the Scope of Hearings

Section 54.29 of the previous license renewal rule provided that the Commission may issue a renewed license if—

(a) Actions have been identified and have been or will be taken with respect to age-related degradation unique to license renewal of systems, structures, and components important to license renewal, such that there is reasonable assurance that the activities authorized by the renewed license will be conducted in accordance with the current licensing basis, and that any changes made to the plant's current licensing basis in order to comply with this paragraph are otherwise in accord with the Act and the Commission's regulations.

(b) Any applicable requirements of subpart A of 10 CFR Part 51 have been satisfied.

(c) Any matters raised under 10 CFR 2.758 have been addressed as required by that (section).

Issues that were material to the findings in § 54.29 of the previous rule, as well as matters approved by the Commission for hearing under § 2.758, were within the scope of a hearing on a renewed license. The previous license renewal rule modified § 2.758 to clarify that challenges to the license renewal rule in an adjudicatory hearing on a renewal application would be considered by the Commission only in the following limited circumstances:

(1) That there are special circumstances with respect to age-related degradation unique to license renewal or environmental protection so that application of either 10 CFR Part 54 or 10 CFR Part 51 would not serve the purpose for which these rules were intended; or

(2) Because of circumstances unique to the period of extended operation, there would be noncompliance with the plant's CLB or operation that is inimical to the public health and safety during the period of extended operation.

The intent of those provisions in the previous rule was to clarify that safety and environmental matters not unique to the period of extended operation would not be the subject of the renewal application or the subject of a hearing in a renewal proceeding absent specific Commission direction. Rather, issues that represent a current problem for operation would have been addressed in accordance with the Commission's regulatory process and procedures. Thus, under the previous rule, a member of the public who believed that a current problem exists with a license or a matter exists that is not adequately addressed by current NRC regulations would have either petitioned the NRC to take appropriate action under § 2.206, or petitioned the NRC to institute rulemaking to address the issue under § 2.802.

The Commission continues to believe that aging management of certain important systems, structures, and components during this period of extended operation should be the focus of a renewal proceeding and that issues concerning operation during the currently authorized term of operation should be addressed as part of the current license rather than deferred until a renewal review (which would not occur if the licensee chooses not to renew its operating license). However, in this final rule, the Commission has narrowed the scope of structures and components that will require an aging management review for the period of extended operation and identification and evaluation of time-limited aging analyses by the applicant. Accordingly, conforming changes in § 54.29 have been made to reflect the refocused renewal review. Specifically, § 54.29 has been revised to delete the term "age-related degradation unique to license renewal," and substitute the findings (required for consistency with the revised § 54.21 (a)(3) and (c)) with respect to aging management review and time-limited aging analyses evaluation for the period of extended operation. Furthermore, § 2.758 has similarly been revised to delete the terms "age-related

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degradation unique to license renewal" and "unique to the requested term." The elimination of ARDUTLR requires elimination of the concept that the renewal review or hearing must be confined to aging issues that are "unique" to license renewal. Instead, limits on the scope of renewal review and hearing are based on careful review of the sufficiency of the NRC regulatory process to resolve issues not considered in renewal.

Section 54.29 of the proposed rule (59 FR 46579) was intended to accomplish several things. Proposed § 54.29(a) was intended to define the findings that the Commission must make in order to issue a renewed operating license to a nuclear power plant and the scope of any hearing on the renewal application.² By contrast, proposed § 54.29 (b) and (c) were intended to identify the issues that were NOT to be part of the renewal review and to re-emphasize the renewal applicant's obligation under its current operating license to address, in the context of that license, those aging matters identified in the course of its renewal review that may reasonably be expected to cause a loss of function for systems, structures, or components during the current term of operation. Both DOE and NEI commented that by combining these purposes into a single section, the proposed rule could be erroneously interpreted as requiring a general demonstration of compliance with the CLB as a prerequisite for issuing a renewed license. While the Commission believes that the proposed rule was sufficiently clear in distinguishing between the issues that must be addressed as part of the renewal review versus those which must be addressed in the context of the current license, the Commission has considered the comments of DOE and NEI as evidence that the language of the proposed rule could be further improved. Upon review of NEI's and DOE's proposals, the Commission has decided to adopt an approach similar to the DOE proposal, which narrows § 54.29 to the findings to be made for issuance of a renewed license, and describes in a new section, 54.30, the licensee's responsibilities for addressing safety matters under its current license, that are not within the scope of the renewal review. Separating the subjects into two different sections should minimize any possibility of

misinterpreting the scope of the renewal review and finding.

Section 54.29(a) of the proposed rule set forth the three findings, in paragraphs (a)(1), (a)(2) and (a)(3), which the NRC must make in order to issue a renewed license. The first finding in paragraph (a)(1) was divided into two numbered paragraphs (1)(i) and (1)(ii). DOE commented that numbering the clauses could lead to an erroneous interpretation that two separate, parallel conditions must be met in order to make the first finding. To avoid the potential misinterpretation, DOE recommended a revised numbering scheme. The Commission agrees that separately numbering clauses (i) and (ii) in paragraph (a)(1) could lead to an erroneous interpretation that two parallel conditions must be met in order to make the finding in paragraph (a)(1). Therefore, the Commission has adopted an approach similar to the DOE proposal.

i. Regulatory and Administrative Controls

Certain regulatory and administrative controls in the previous license renewal rule were imposed to specify the circumstances and requirements necessary to make changes relating to the determination and management of ARDUTLR and the recordkeeping and reporting requirements relating to the renewal application. In view of the greater reliance on existing programs in the license renewal process, as discussed in Section III.d of this SOC, the Commission has determined that many of these requirements are no longer necessary. Therefore, the Commission has decreased the recordkeeping and reporting burden on the applicant for license renewal in the level of detail in the application, requirements for supplementing the FSAR, and in recordkeeping requirements.

The Commission seeks to ensure that, in general, only the information needed to make its safety determination is submitted to the NRC for license renewal review and that regulatory controls imposed by the license renewal rule are consistent with existing regulatory controls on similar information that may be developed by a licensee during the current operating term.

(i) Controls on Technical Information in an Application

In § 54.21, the previous license renewal rule requires that an application include a supplement to the FSAR that presents the information required by this section. This

information included the IPA lists of systems, structures, and components, justification for assessment methods, and descriptions of programs to manage ARDUTLR.

The simplification of the IPA process (Section III.f of this SOC) and the clarification of the concept of ARDUTLR (Section III.b of this SOC) have resulted in a potential inconsistency regarding the treatment of information associated with the IPA. The Commission has determined that there is no need to include the entire IPA in an FSAR supplement because only the information associated with the IPA regarding the basis for determining that aging effects are managed during the period of extended operation requires the additional regulatory oversight afforded by placing the information in the FSAR. Therefore, only a summary description of the programs and activities for managing the effects of aging during the period of extended operation for those structures and components requiring an aging management review needs to be included in the FSAR supplement. The IPA methodology and the list of structures and components need not appear in an FSAR supplement, although this information will still be required in the application for license renewal.

The Commission has also eliminated § 54.21 (b) and (d) of the previous rule. These sections concern CLB changes associated with ARDUTLR and plant modifications necessary to ensure that ARDUTLR is adequately managed during the period of extended operation. This information is now required as part of § 54.21 (a)(3) and (c). Relevant information concerning changes to the CLB and plant modifications required to demonstrate that aging effects for systems, structures, and components requiring an aging management review for license renewal must be described in the application for license renewal (§ 54.21 (a)(3) and (c)). If a license renewal applicant or the Commission determines that CLB changes or plant modifications form the basis for an IPA conclusion regarding structures and components requiring an aging management review, then an appropriate description of the CLB change or plant modification must be included in the FSAR supplement. Subsequent changes are controlled by § 50.59.

Section 54.21(c) of the previous license renewal rule required that an applicant for license renewal submit (1) a list of all plant-specific exemptions granted pursuant to 10 CFR 50.12 and each relief granted pursuant to 10 CFR

² The scope of Commission review determines the scope of admissible contentions in a renewal hearing absent a Commission finding under 10 CFR 2.758.

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50.55a and (2) an evaluation if the exemption or relief was related to a system, structure, or component that was subject to ARDUTLR or a time-limited function. These lists and evaluations were to be included in the supplement to the FSAR. At that time, the Commission determined that these requirements were necessary to make an independent assessment that all exemptions and reliefs had been evaluated as part of the license renewal process. The Commission determined that these requirements were important because they provided a summary of the instances in the licensing basis for the period of extended operation in which the staff determined that strict compliance with existing regulatory requirements is not needed to ensure that the public health and safety is adequately protected.

The Commission continues to believe that the rationale and basis for requiring the information to be submitted are still valid for exemptions. The Commission has relocated the requirement to list and evaluate certain exemptions to proposed § 54.21(c). Thus, these exemptions can, therefore, be considered a subset of time-limited aging issues.

Consistent with the Commission's rationale for including only a summary description of programs and activities in the FSAR supplement, the Commission concludes that only a summary description of the evaluation of time-limited aging analyses, including a summary of the bases for exemptions that are based on time-limited aging analyses, needs to be included in the FSAR supplement. The Commission concludes that no needs exist to establish additional requirements that place the list of exemptions or specific exemption evaluations into the FSAR supplement, although this information must still be contained in the application for license renewal.

A relief from Codes need not be evaluated as part of the license renewal process. A relief granted pursuant to 10 CFR 50.55a is specifically envisioned by the regulatory process. A relief expires after a specified time interval (not to exceed 10 years) and a licensee is required to rejustify the basis for the relief. At that time, the NRC performs another review and may or may not grant the relief. Because a relief is, in fact, an NRC-approved deviation from the Codes and subject to a periodic review, the Commission concludes that reliefs are adequately managed by the existing regulatory process and should not require an aging management review and potential rejustification for license renewal. Therefore, the Commission has

deleted the requirement to list and evaluate reliefs from § 54.21(c).

In its comments, NEI noted that the requirement contained in § 54.22 of the proposed rule requiring justification for technical specifications changes that are necessary to manage the effects of aging in the period of extended operation be placed in the FSAR supplement is not generally consistent with current regulatory practices. NEI states that the basis for such technical specification changes only should be required to be documented in the bases section of the technical specifications. The Commission agrees with NEI concerning the requirement to include the justification for technical specifications in the FSAR supplement and has clarified the requirement in § 54.22 to be more consistent with § 50.36. Section 54.22 now states that the justification for changes or additions to the technical specifications must be contained in the license renewal application.

(ii) Conditions of Renewed License

Section 54.33 of the previous rule required that, upon renewal, a licensee maintain the programs and procedures, which would have been reviewed and approved by the NRC staff, for managing ARDUTLR. In addition, § 54.33 established requirements for making changes to previously approved programs and procedures to manage ARDUTLR consistent with the rule changes that delete the term "ARDUTLR."

Considering the proposed amendments associated with the elimination of the term "ARDUTLR," the rule requires programs and procedures to manage the effects of aging for certain systems, structures, and components. However, the Commission will not approve specific programs and procedures as envisioned by the previous license renewal rule (e.g., effective programs). The Commission will review programs and procedures described in the license renewal application and determine whether these programs and procedures provide reasonable assurance that the functionality of systems, structures, and components requiring review will be maintained in the period of extended operation. The license renewal review that would be conducted under this rule may consider all programs and activities to manage the effects of aging that ensure functionality for these systems, structures, and components. A summary description of the programs and activities for managing the effects of aging for the period of extended operation or evaluation of time-limited aging analyses, as appropriate, for these

systems, structures, and components will be placed into the FSAR supplement. License conditions and limitations determined to be necessary as part of the license renewal review will continue to be required by the Commission in accordance with § 54.33(b).

The regulatory process will continue to ensure that proposed changes to programs and activities that may affect descriptions in the FSAR will receive adequate review by the licensee and, if appropriate, by the NRC. Therefore, the Commission has deleted the § 54.33(d) requirements for making changes to previously approved programs and procedures to manage ARDUTLR.

(iii) Additional Records and Recordkeeping Requirements

Section 54.37 of the previous rule required that the, § 50.71(e) required, periodic FSAR update:

(1) Include any systems, structures, and components newly identified as important to license renewal after the renewed license is issued;

(2) Identify and provide justification for any systems, structures, and components deleted from the list of systems, structures, and components important to license renewal; and

(3) Describe how ARDUTLR will be managed for those newly identified systems, structures, and components.

The Commission reviewed the requirements for updating the FSAR (§ 54.37(b)) and determined that the requirements needed to be modified. As discussed in Section III.i.(i) of this SOC, the requirement to list systems, structures, and components that are "important to license renewal" in the FSAR supplement that accompanies the renewal application has been deleted. Therefore, in order to be consistent with the controls on technical information discussed in Section III.i.(i), the Commission has revised the requirements for information to be included in the periodic FSAR supplement. For example, the previous requirement to identify and provide justification, in the periodic FSAR update, for any systems, structures, and components deleted from the aforementioned list is no longer necessary and has been deleted from the final rule. In addition, the previous rule's requirement to describe how ARDUTLR will be managed for those newly identified systems, structures and components has been modified. For newly identified systems, structures, and components that would have required either an aging management review or a time-limited aging analysis, the final rule requires that the licensee

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describe in the periodic FSAR update how the effects of aging will be managed to ensure that the systems, structures, and components perform their intended function during the period of extended operation.

Two commenters indicated that the level of detail required by § 54.37(b) (a description of how the effects of aging will be managed in the period of extended operation) is greater than, and therefore inconsistent with, the level of detail required in the FSAR supplement required by § 54.21(d) (a summary description of the programs and activities necessary for managing the effects of aging). The Commission believes that it is important to note that the systems, structures, and components discussed in § 54.37(b) are those *newly identified* systems, structures, and components that would have been subject to an aging management review in the license renewal process. If identified as part of the license renewal process, information concerning the aging management for these structures and components would have been contained in the application for license renewal. During the license renewal process, the application and the FSAR supplement, together, provide the necessary information and administrative controls to evaluate and help ensure the efficacy of aging programs for these structures and components. After a renewed license is issued, the information in the FSAR supplement serves the dual purposes of (1) Assuring that the licensee has considered relevant technical information regarding the evaluation of aging effects for these newly identified systems, structures, and components and (2) establishing appropriate administrative and regulatory controls on the programs that manage aging for these newly identified systems, structures, and components. Therefore, the Commission concludes that the characterization of the level of detail required in the FSAR supplement for newly identified systems, structures, and components by § 54.37(b) is appropriate.

Section 54.37(c) of the previous rule required that a licensee do the following:

(1) Submit to the NRC at least annually a list of all changes made to programs for management of ARDUTLR that do not decrease the effectiveness of "effective" programs, with a summary of the justification and

(2) Maintain documentation for any changes to "effective" programs that are determined not to reduce the effectiveness of the program.

Under this rule, the Commission will review aspects of programs and procedures described in the license renewal application and determine whether these programs and procedures will provide reasonable assurance that the functionality of systems, structures, and components requiring review will be maintained in the period of extended operation. The license renewal review that would be conducted under this rule may consider all programs and activities that manage the effects of aging and ensure functionality for these certain systems, structures, and components. The existing regulatory process, existing licensee oversight activities, and the additional regulatory controls associated with placing a summary description of activities to manage the effects of aging into the FSAR are sufficient to ensure that changes to programs that could decrease the overall effectiveness of the programs to manage the effects of aging and the evaluation of time-limited aging analyses for the systems, structures, and components requiring license renewal review will receive appropriate review by the licensee. Therefore, the Commission has deleted § 54.37(c).

IV. General Comments and Responses

(1) One commenter recommended that the NRC perform a full economic analysis for the period of extended operation. The commenter indicated that topics such as the expense involved in monitoring and/or replacing components, the increase in decommissioning costs as plants are operated longer and waste is accumulated, a comparison of the costs for operating the plant for the additional time versus the cost of other sources of power need to be addressed.

The economics of electrical power generation is the responsibility of the individual utility and the Federal or State agencies that are given that authority and responsibility. Generally, a State public utility commission or the Federal Energy Regulatory Commission, along with the utility, have the responsibility and the authority to address economic issues associated with power generation. Furthermore, the Commission's regulatory responsibility (as defined by the Atomic Energy Act, the NRC's organic statute) does not confer upon the Commission primary authority for regulating the economics of nuclear power generation. Under these circumstances, the Commission does not believe that it should perform economic analyses of nuclear power generation as a basis for informing the Commission's licensing decisions. While it is true that the Commission currently addresses the economics of

operating a nuclear power plant in the context of an environmental impact statement (EIS), it should be recognized that these analyses have been conducted in the context of EISs as part of the Commission's process for complying with the mandates of the National Environmental Policy Act (NEPA). However, NEPA does not require such economic analyses. In a separate rulemaking (59 FR 37724) the Commission is considering whether the Commission's current analytical approach should be altered by moving away from economic analyses in EISs and redirecting the NEPA evaluation to focus on environmental impacts. In sum, the Commission is not statutorily required, and does not believe it is necessary, to perform economic analyses of extended operation of nuclear power plant licenses.

(2) NEI commented that an aging management review that involves an issue that is being addressed by the NRC as a GSI or an unresolved safety issue (USI) should not hold up the issuance of a renewed license pending the resolution of the issue.

Resolution of a USI or GSI generically for the set of applicable plants is not necessary for the issuance of a renewed license. GSIs and USIs that do not contain issues related to the license renewal aging management review or time-limited aging evaluation are *not* a subject of review or finding for license renewal. However, designation of an issue as a GSI or USI does not exclude the issue from the scope of the aging management review or time-limited aging evaluation.

For an issue that is both within the scope of the aging management review or time-limited aging evaluation *and* within the scope of a USI or GSI, there are several approaches which can be used to satisfy the finding required by section 54.29. If an applicable generic resolution has been achieved before issuance of a renewed license, implementation of that resolution could be incorporated within the renewal application. An applicant may choose to submit a technical rationale which demonstrates that the CLB will be maintained until some later point in time in the period of extended operation, at which point one or more reasonable options (e.g., replacement, analytical evaluation, or a surveillance/maintenance program) would be available to adequately manage the effects of aging. (An applicant would have to describe its basis for concluding that the CLB is maintained, in the license renewal application, and briefly describe options that are technically feasible during the period of extended

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operation to manage the effects of aging, but would not have to preselect which option would be used.) Another approach could be for an applicant to develop an aging management program which, for that plant, incorporates a resolution to the aging effects issue.

Another option could be to propose to amend the CLB (as a separate action outside of the license renewal application) which, if approved, would revise the CLB such that the intended function is no longer within the CLB.

(3) Several commenters suggested that as plants age, the regulatory requirements need to be strengthened rather than relaxed. These commenters indicated that the proposed license renewal rule is a relaxation of the previous rule, serving only to provide incentives for applicants, rather than an enhancement to public safety.

The Commission does not agree that regulations must be strengthened simply because a plant ages. The Commission believes that additional regulations should be imposed when there is some reason to believe that current regulation are inadequate. The Commission's regulatory process continuously assesses the need for additional oversight and implements appropriate regulations to ensure public health and safety. Equally important, however, is the Commission's policy to ensure that its regulations promote a stable, efficient, and predictable regulatory environment. Therefore, where the Commission recognizes a more efficient and stable means of achieving a particular level of safety, it strives to implement that approach.

The Commission implemented a license renewal rule because existing regulations did not contain clear guidance on renewals and, further, the Commission believed that current regulations were inadequate to address the effects of aging in the period of extended operation. Upon implementation of the previous license renewal rule, however, the Commission determined that the rule could be amended to create a more efficient and stable license renewal process, while retaining the same degree of safety provided by the previous rule.

(4) Nevada commented that the Commission should be analyzing whether there was any condition, act, or practice that occurred during the period of initial licensing that would affect the period of extended operation. In a broad sense, the regulatory process continuously evaluates the safety status of licensed plants and modifies licensing bases as necessary to ensure that plant operation is not inimical to the public health and safety. As

discussed in the SOC of the previous rule (56 FR at 64951), the Commission's inspection program obtains sufficient information on licensee performance, through direct observation and verification of licensee activities, to determine whether the facility is being operated safely and whether the licensee management control program is effective and to ascertain whether there is a reasonable assurance that the licensee is in compliance with regulatory requirements. Further, as discussed in the SOC for the previous rule (56 FR at 64947), the Commission has a program for the review of operating events at nuclear power plants. The total program offers a high degree of assurance that events that are potentially risk significant or precursors to significant events are being reviewed and resolved expeditiously. Response to events may result in minor followup inspection activities at a single plant up to generic safety improvements at all plants—regardless of license terms. Thus, the Commission continuously analyzes conditions, acts, and practices that could affect safe operation of plants and takes appropriate action.

(5) One commenter asked whether the original rules concerning emergency preparedness are still in effect, even though the proposed rule changes did not mention any revisions to emergency preparedness requirements. The Commission's response is; yes, the previous rules provisions on emergency preparedness are still in effect.

(6) One commenter stated that the rule should be written in language that the average, literate citizen can comprehend. The commenter further states that technical terms, or specialized phraseology whose purpose is to express a precise meaning, legal or otherwise, can and should be fully explained. The Commission agrees with the commenter to the extent that NRC documents should be written so that as many people as possible can comprehend them. The expectation is for all Commission documents to be written as clearly as possible so that they can be easily comprehended. The Commission has taken steps to clarify technical terms and phraseology in the final rule and SOC. For example: the phrase "age-related degradation unique to license renewal" was not well understood and not easily explained; in part because of this the Commission has removed this phrase from the rule.

(7) One commenter claimed that the Commission did not consult with either any environmental group or any members of the general public when the Commission was seeking advice during a public workshop on the proposed

changes to the license renewal rule. Rather, the Commission relied solely on the expertise of representatives of nuclear utilities, industry organizations, architects and engineering firms, consultants and contractors, and Federal and State agencies.

The Commission disagrees. Consistent with the Commission's policy of seeking input from the entire spectrum of the public, the Commission provided ample opportunity for public comment. The Commission held a public workshop on September 30, 1993, to discuss alternative approaches to the license renewal rule. A notice of the public workshop was published in the *Federal Register* on August 12, 1993. In addition to the *Federal Register* notice, the NRC explicitly contacted four public interest groups that had previously indicated interest in license renewal. The NRC staff contacted representatives from the Union of Concerned Scientists, the Nuclear Information and Resource Service, the Natural Resources Defense Council, and the Public Citizen Litigation Group. Representatives from the Nuclear Information and Resource Service and the Public Citizen Litigation Group attended the workshop. Written comments from the Ohio Citizens for Responsible Energy, Inc. were also received. The proposed changes to the license renewal rule were published in the *Federal Register* on September 9, 1994, for public comment. Three public interest groups provided comments: the Public Citizen, the Ohio Citizens for Responsible Energy, Inc., and the Sierra Club. During the upcoming development of implementation guidance (a standard review plan for license renewal and a regulatory guide for license renewal), external NRC meetings will be open to the public and the draft standard review plan for license renewal and the draft regulatory guide for license renewal will be made available for public comment.

(8) NEI stated that 10 CFR 54.23 requires an "environmental report that complies with the requirements of 10 CFR Part 51." 10 CFR 51.53 requires a supplemental environmental report. The wording should be consistent between Parts 51 and 54. The Commission agrees and the Part 54 wording will be changed to be consistent with Part 51.

(9) Two commenters encouraged the creation of implementation guidance in the form of a regulatory guide and a standard review plan. The current NRC effort is focused on the completion of this license renewal rule and the review of the initial license renewal submittals. The NRC intends to develop and issue guidance in the future in the form of a regulatory guide and a standard review

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plan, however, the guidance may not be issued prior to the NRC review of a number of submittals.

(10) One commenter suggested that the NRC should require an update of plant environs for parameters such as population density to assure that the original licensing basis is still valid prior to license renewal.

The Commission does not agree that a review of plant environs is necessary as a precondition for license renewal. Aside from such a review being beyond the scope of license renewal, the Commission's regulations in 10 CFR 50.71(e) require a licensee to ensure that the FSAR contains the latest and most accurate information. This requirement includes parameters on plant environs such as population density, which is normally contained in Chapter 2 of the FSAR.

V. Public Response to Specific Questions

In the Notice of Proposed Rule (59 FR at 46589), the Commission requested public comment on five specific questions. The Commission appreciates the public's comments on these five questions.

Discussion. An aging management review is required for a small subset of structures and components within the scope of license renewal. As described in Section III.f of this SOC, the Commission believes, on the basis of existing regulatory requirements and operating experience, that the aging management review can be limited to "passive," "long-lived" structures and components.

1. Should additional structures and components within the scope of license renewal be explicitly required to receive an aging management review?

2. If so, what would be the bases for requiring such additional structures and components to be subject to an aging management review?

Commenters responded to questions 1 and 2 by stating that additional structures and components not included in the proposed rule require an aging management review, no additional structures and components require an aging management review, and structures and components requiring an aging management review under the proposed rule should be excluded. The Commission has responded to the individual comments on requiring an aging management review for additional structures and components in Section III(d)(v) of this SOC. Comments stating that additional structures and components should be generically excluded from an aging management

review are answered in response to question 3 in this Section.

Discussion. The IPA in the proposed amendment to the license renewal rule contains a process to narrow the focus of the aging management review to encompass those structures and components that are "long-lived" and "passive" (see § 54.21(a)(1) (i) and (ii)).

In SECY-94-140, the Commission considered the possibility that *redundant*, long-lived, passive structures and components could be generically excluded from an aging management review for license renewal. The basis for this consideration was that redundancy is one aspect of a defense-in-depth design philosophy that could provide reasonable assurance that certain single failures would not render systems, structures, or components incapable of performing their intended function(s). The staff reasoned that although simultaneous failures of redundant structures and components are hypothetically possible, the physical variables and the differences in operational and maintenance histories that will influence the incidence and rates of aging degradation between otherwise identical structures and components make simultaneous failures of redundant equipment unlikely. In addition, existing programs and requirements (i.e., maintenance rule and 10 CFR Part 50, Appendix B) would result in activities to determine the root causes for failures and mitigate future occurrences of them.

On further consideration, however, the Commission has recognized, because it cannot generically determine that all licensees have processes, programs, or procedures in place for the timely detection of degraded conditions as a result of aging during the period of extended operation for passive, long-lived structures and components, that the potential exists for reduced reliability and failure of *redundant*, long-lived, passive structures and components. If the condition of these structures and components were degraded below their CLB (i.e., design bases, including seismic design), without detection and corrective action, a failure of *redundant*, passive structures and components is possible given, for example, the occurrence of a design-basis seismic event, such that the system may not be able to perform its intended functions. Therefore, without readily monitorable performance and/or condition characteristics to reveal degradation that exceeds CLB levels (as in the case of passive, long-lived structures and components) the Commission believes it inappropriate to permit generic exclusion of *redundant*,

long-lived, passive structures and components. If, however, an applicant, in the site-specific renewal application, can demonstrate that their facility has specific programs or processes in place to detect ongoing degradation such that failure of *redundant*, long-lived, passive structures and components is avoided, the Commission may be able to credit such programs and allow *redundant*, long-lived, passive structures and components to be generically excluded from further aging management review.

3. Is there additional information for the Commission to consider that would satisfy the Commission's concern relative to the detection of degradation in *redundant*, long-lived, passive structures and components such that failures that might result in loss of system function are unlikely, and to warrant a generic exclusion?

One commenter stated that "built in" redundancy is an essential safety feature and suggested that redundant, passive, long-lived structures and components should not be excluded from an aging management review.

Industry commenters, on the other hand, attempted to provide sufficient justification for generically excluding from an aging management review those components whose failure will not result in a loss of system function. The industry divided these components into two categories: (1) redundant components and (2) small components that can be isolated, such as instrument lines. The industry believes that passive, long-lived components that have designed redundancy are subject to extensive licensee programs that verify structural integrity and functional capability. These extensive programs, together with the established redundancy, ensure that the effects of aging will be detected so that corrective action can be taken before a loss of the system's intended function. The industry believes that the stringent seismic design requirements coupled with current plant programs provides greater assurance that structural integrity and capability of passive components will be maintained during an earthquake. Moreover, the industry believes that the slow, long-term characteristics of the aging process and the fact that this aging process is not occurring at an identical rate in redundant trains, allows degraded conditions to become self-revealing before a loss of the intended system function.

As discussed in the proposed rule amendment, the Commission concluded that passive, long-lived components should be subject to an aging management review because, in general,

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functional degradation of these components is not as readily revealable so that the regulatory process and existing licensee programs may not adequately manage the detrimental effects of aging in the period of extended operation. In their comments on the proposed rule amendment, the industry provided some examples of how aging effects of certain passive structures and components could be considered by the Commission to be adequately managed during the period of extended operation. However, the basis for the aging management programs described in the examples relies on individual licensee programs rather than on design redundancy.

While the industry examples may be a basis for determining that aging of a structure or component is adequately managed in a plant-specific application, a generic determination of acceptability is difficult given the variations among plant designs and programs. However, as the NRC gains more experience with the effects of aging during the period of extended operation and can better define the boundary of adequate aging management for passive, long-lived structures and components, the Commission may consider further narrowing the scope of passive, long-lived structures and components requiring an aging management review.

Additionally, the industry did not adequately address the Commission's concern relative to aging degradation below design bases occurring simultaneously in redundant trains such that an initiating event (e.g., a seismic event) may lead to failure of the intended system function. The industry's argument that aging will not occur at identical rates and that a failure in one redundant train will lead to investigative and corrective actions before the remaining component fails, is not compelling. Absent more detailed information, the Commission cannot preclude the possibility of common mode failures of redundant, passive structures and components. Further, the Commission believes that crediting a regulatory requirement (i.e., redundancy) as a surrogate for an aging management program to ensure a system's intended function exploits the Commission's defense-in-depth philosophy. In addition, this argument is circular because the established redundancy would, in essence, be used to assure continued redundancy in the period of extended operation.

The industry also proposed that the Commission generically exclude from an aging management review certain portions of systems whose failure can either be isolated or whose failure will

not result in the loss of the associated system's intended function. The industry cites small instrument lines and sensors that can be isolated (i.e., manual isolation by operator action) as examples of components that could be excluded from an aging management review using these criteria.

The Commission cannot generically exclude these components from consideration for an aging management review for several reasons. The Commission does not deem it appropriate to generically credit operator action (e.g., manual component isolation), exclusively as adequate aging management for portions of systems that would otherwise require an aging management review. Such an exclusion necessarily presumes that manual valve isolation would occur—a presumption the Commission cannot make. In addition, all "passive", "long-lived" portions of systems that perform an intended function as specified in § 54.4(b) require an aging management review. Instrument lines, for example, typically are "passive", "long-lived" and form part of a system's pressure boundary. The Commission cannot generically exclude these portions of systems from an aging management review because failure of these portions of systems may result in the loss of the system's intended function (e.g., required instrumentation, pressure boundary, flowrate). Therefore, an applicant for license renewal will be required to perform an aging management review for these portions of systems. However, an applicant for license renewal may perform, or may have performed, additional plant-specific analyses that adequately demonstrate that failure of these non-redundant portions of systems will not result in the loss of any of the associated systems' intended functions. In this case, these plant-specific analyses could provide the basis for a license renewal applicant to conclude that these non-redundant portions of systems do not meet the functional scoping criteria of § 54.4(b) and, therefore, are not subject to an aging management review.

Discussion. The Commission concluded in the SOC for the current license renewal rule (56 FR 64963; December 13, 1991) that 20 years of operational and regulatory experience provides a licensee with substantial amounts of information and would disclose any plant-specific concerns with regard to age-related degradation. In addition, a license renewal decision on the operating license would be reasonable considering the estimated time necessary for utilities to plan for

replacement of retired nuclear power plants. One utility has recently indicated that decisions regarding license renewal made earlier in the current license term may create substantial current-day economic advantages while still providing sufficient plant-specific history. This utility suggested that the earliest date for filing a license renewal application be changed so that a license renewal application can be submitted earlier than 20 years before expiration of the existing operating license. The term of the renewed license would still be limited to 40 years.

4. Is there a sufficient plant-specific history before 20 years of operation as specified in the current rule that provides reasonable assurance that aging concerns would be identified? If not, can reliance on industry-wide experience be used as a basis for considering an application for license renewal before 20 years of operation? What should be the earliest time an applicant can apply for a renewed license?

The NRC received six responses to the question. Four of the six commenters opposed consideration of license renewal applications prior to 20 years of operation. These comments included arguments such as:

(1) Early applications may not allow for the effects of deterioration due to aging to appear in sufficient diversity or intensity for management to acquire a full range of experience in dealing with these problems;

(2) Licensees might apply for renewal over a shorter period before the effects of aging are apparent;

(3) Early applications could negatively impact the review schedule for older plants; and

(4) There is a lack of experience with the maintenance rule. One of these commenters suggested the possibility of approving a license renewal contingent on imposing certain special testing requirements during the final years of the original license term to ensure that substantial physical degradation of passive, long-lived safety-related equipment had not occurred. NEI, while not specifically favoring a rule change allowing early applications, stated that depending on the individual plant and its operating history, there may be sufficient operating history available to provide reasonable assurance that aging concerns can be identified and, therefore, an applicant may request an exemption. One commenter (DOE) was in favor of a rule change allowing an early application. DOE stated that, in general, aging effects are apparent after only a few years of operation and that

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industry-wide data provides a sound basis to understand and address the effects of aging, even at a plant that has operated only a few years. DOE foresees no technical impediment to license renewal prior to 20 years of operation.

Based on the general nature of the information provided by the commenters, no change to the final rule will be made. The Commission is willing to consider, however, plant-specific exemption requests by those applicants who believe that they may have sufficient information available to justify applying for a renewal license prior to 20 years from the expiration date of the current license.

5. What additional safety, environmental, or economic benefits or concerns, if any, would result from a decision about license renewal made before the 20th year of current plant operation?

The NRC received two responses to this question. NEI felt that a significant economic benefit would likely be derived from license renewal decisions made before the 20th year of operation. However, they stated that the industry cannot estimate the exact benefit because it is likely to vary considerably from plant to plant. NEI also stated that it is clear that knowledge gained from license renewal will enhance the utility's ability to engage in long-range planning and may enable the utility to modify its electrical rates accordingly. DOE added that they were unaware of any safety or environmental concerns that would result from a license renewal decision before the 20th year of operation, other than those issues that would be considered for any license renewal.

No new specific information concerning additional safety, environmental, or economic benefits of license renewal applications before the 20th year was provided by any commenters. Therefore, the Commission has determined not to change Section 54.17.

VI. Availability of Documents

Copies of all documents cited in the Supplementary Information section are available for inspection and/or for reproduction for a fee in the NRC Public Document Room, 2120 L Street N.W. (Lower Level), Washington, DC 20555.

In addition, copies of NUREGs cited in this document may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, DC 20402-9328. Copies are also available for purchase from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

VII. Finding of No Significant Environmental Impact: Availability

The NRC prepared a draft environmental assessment (EA) for the proposed rule pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended; the regulations issued by the Council on Environmental Quality (40 CFR 1500-1508), and the NRC's regulations (Subpart A of 10 CFR 51). Under NEPA and the NRC's regulations, the Commission must consider, as an integral part of its decisionmaking process on the proposed action, the expected environmental impacts of promulgating the proposed rule and the reasonable alternatives to the action. The NRC concluded that promulgation of the proposed rule would not significantly affect the environment and, therefore, a full environmental impact statement would not be required and a finding of no significant impact (FONSI) could be made. The basis for these conclusions and the finding are summarized below.

The NRC previously assessed the environmental impacts from promulgation of a license renewal rule in NUREG-1398, "Environmental Assessment for the Final Rule on Nuclear Power Plant License Renewal." In this assessment, the NRC concluded that the promulgation of 10 CFR 54 will have no significant impact on the environment. With this assessment as a baseline, the NRC's approach for assessing the environmental impact of the proposed rule centered on analyzing any differences in the expected rule-related actions from the previous rule compared to those under the proposed rule.

The requirements for a renewed license under both the previous rule and the proposed rule are similar. Both approaches could result in the operation of plants up to 20 years beyond the expiration of the initial license. An emphasis would be placed on certain systems, structures, and components undergoing a specific aging management review to provide assurance that the effects of aging are adequately managed, thus ensuring functionality during the period of extended operation. Under both approaches, license renewal applicants must screen plant systems, structures, and components through an IPA to determine which systems, structures, and components will be subject to a license renewal review and then determine whether additional actions are required to manage the effects of aging so that the intended function is maintained. The principal differences between the proposed rule and the previous rule are in (1) the

screening of systems, structures, and components to identify those that must undergo a plant-specific aging management review and (2) the form of this aging management review.

Under the screening of systems, structures, and components that must be further reviewed, the proposed rule effectively narrows the scope of systems, structures, and components subject to an aging management review. In general, the previous rule contained a definition of ARDUTLR that would cause many systems, structures, and components to require further aging management review but would allow existing licensee programs and activities (including the maintenance rule) to serve as a basis for concluding that ARDUTLR will be adequately managed in the period of extended operation. The proposed rule would retain the screening of systems, structures, and components but would reduce the scope of systems, structures, and components requiring review to a narrowly defined group based on an NRC determination, in this rulemaking, of the effectiveness of current licensee programs and activities and NRC requirements that will continue into the period of extended operation. Because the proposed rule has essentially the same results with respect to management of aging effects in the period of extended operation as the previous rule, but provides a more efficient process to achieve these results, the environmental impacts of the proposed rule would be similar to those under the previous rule.

With respect to the form of the aging management review, the proposed rule would establish a clear focus on managing the functionality of systems, structures, and components in the face of detrimental aging effects as opposed to identification and mitigation of aging mechanisms. The Commission concluded that the focus on identification of aging mechanisms is not necessary because regardless of the aging mechanism, only those that lead to degraded component performance or condition (i.e., potential loss of functionality) are of concern. Therefore, the Commission concluded that an aging management review that seeks to ensure a component's functionality is a more efficient and appropriate review. This change only improves the efficiency of the licensee's aging management review. Therefore, the environmental impacts would be similar to those under the previous rule.

The ultimate licensee actions to manage aging in the renewal term under the proposed rule are expected to be similar to those under the previous rule. However, the required activities to

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manage the effects of aging will be arrived at more efficiently under the proposed rule. Therefore, the environmental impact of license renewal under the proposed rule would be similar to that for license renewal under the previous rule. Hence, the Commission concluded that the proposed rule would not significantly impact the environment.

The Commission's EA and FONSI for the proposed rule were issued in draft and public comments were solicited. Several public comments were received and are addressed below.

Two commenters stated that the NRC should be required to prepare an EIS for license renewal. In general, these commenters believed that the EIS should include a discussion on the following issues:

(a) A full description of proposed mitigation measures to counteract reactor degradation due to aging;

(b) The cumulative effects of an added 20 years of discharge of radioactive cooling waters and/or steam;

(c) The environmental impacts of prolonged stockpiling of high-level and low-level waste; and

(d) Plans for public involvement from the first scoping session, through subsequent public hearing.

The Commission has undertaken a review of the environmental impacts of license renewal from two different perspectives. First, for the purposes of evaluating the environmental impacts of a formal regulatory process for license renewal, the NRC prepared NUREG-1398. This environmental assessment served to assess the degree to which the renewal of operating licenses via a formal regulatory process would differ from renewal of operating licenses under existing regulations that do not specify standards for license renewal applications. The environmental assessment discussed the issues of additional waste generation, activities required to address aging degradation in the renewal period, and impacts of radioactive discharges. The Commission concluded in that environmental assessment that a formal license renewal regulation establishing the standards for license renewal applications would result in no significant impact from those impacts expected from renewal without a formal license renewal process. The staff performed an additional environmental assessment for the proposed amendments to the previous license renewal rule and concluded, consistent with the previous environmental assessment, that the amended rule would result in no significant impact.

Second, for the purpose of evaluating the environmental impacts associated with granting a renewed license, the NRC is preparing "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, as part of its amendments to 10 CFR 51. The GEIS addresses, in generic fashion, the impacts associated with continued operation of a nuclear plant beyond its original license, including the impacts of activities to counter the effects of aging, the impacts of high-level and low-level waste, and the effects of radioactive discharges. In addition, the Commission has proposed amendments to 10 CFR 51 that would require that a supplement to the GEIS be prepared for individual license renewal applications to address those impacts that could not be generically evaluated in the GEIS. This supplement would be issued in draft for public comment.

One commenter stated that the draft FONSI for the proposed rule is inappropriate. The commenter stated that the NRC is creating incentives for the licensees to seek license renewal by easing rules. The commenter stated that the reduction in review of the new rule will result in significant environmental impacts. The Commission disagrees. The FONSI for the proposed rule was based on the FONSI from the previous license renewal rule (see NUREG-1398) and an analysis of the difference between the previous rule and the proposed rule. As discussed in the EA for the proposed rule, the amended rule will result in the same activities required to adequately manage the effects of aging in the period of extended operation as in the previous rule; however, the method for arriving at these activities will be more efficient. This efficiency is gained because the NRC is generically crediting, in this rule, the existing aging management programs for which the applicant would have had to describe and justify under the previous rule. The Commission does not agree with the commenter that the amendments to the previous rule represent any less stringent a review. The environmental impacts from the amendments to the license renewal rule are expected to be the same as the previous rule because the ultimate actions to manage aging will be the same. Therefore, consistent with the finding of no significant impact for the previous rule, the Commission finds this final rule will result in no significant impact.

One comment stated that the waste confidence decision assumptions can not be transferred to license renewal. The waste confidence decision is not

relevant to 10 CFR 54 or any of its amendments. The formal requirements that an applicant for renewal must meet and the information that must be submitted for the NRC to conduct a license renewal review are established in 10 CFR 54. The environmental assessment for the previous license renewal rule (NUREG-1398) assessed the degree to which the renewal of operating licenses via a formal regulatory process would differ from renewal of operating licenses under existing regulations that did not specify standards for license renewal. The Commission concluded, in that environmental assessment, that the impacts from spent fuel storage under a formal license renewal process would not differ from the spent fuel impacts from license renewal under existing regulations that did not specify standards for renewals. This conclusion does not rely on the Commission's waste confidence decision.

Upon considering these comments, the Commission has determined that the commenter's concerns do not alter the proposed finding in the EA for the proposed rule. Consequently, the Commission has determined under the NEPA, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement is not required. This is because this rule will result in the same activities to adequately manage the effects of aging in the period of extended operation as in the previous rule, although, it arrives at these activities in a more efficient manner. The EA and FONSI on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street N.W. (Lower Level), Washington, DC. Single copies of the environmental assessment may be obtained from John P. Moulton, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 415-1106.

VIII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0155.

The public reporting burden for this collection of information is estimated to average 94,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the

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data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0155), Office of Management and Budget, Washington, DC 20503.

IX. Regulatory Analysis

The NRC prepared a draft regulatory analysis of the values and impacts of the proposed rule and of a set of significant alternatives. The draft regulatory analysis was placed in the Commission's public document room for review by interested members of the public. In addition, a summary of the findings and conclusions of the regulatory analysis were published in the *Federal Register* (59 FR 46591, September 9, 1994) concurrent with the proposed rule. No comments were received on the regulatory analysis. The regulatory analysis has been finalized and is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington DC. Single copies of the analysis may be obtained from Joseph J. Mate, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington DC 20555, (301) 415-1109.

X. Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980, (5 U.S.C. 605 (b)), the Commission certifies that this final rule does not have a significant economic impact upon a substantial number of small entities. The final rule sets forth the application procedures and the technical requirements for renewed operating licenses for nuclear power plants. The owners of nuclear power plants do not fall within the definition of small business entities as defined in Section 3 of the Small Business Act (15 U.S.C. 632), the Small Business Size Standards of the Small Business Administration (13 CFR Part 121), or the Commission's Size Standards (56 FR 56671; November 6, 1991).

XI. Non-Applicability of the Backfit Rule

This rule, like the previous license renewal rule, addresses the procedural and technical requirements for obtaining a renewed operating license for nuclear power plants. Although this

amendment constitutes a change to an existing regulation, the NRC has determined that the backfit rule, 10 CFR 50.109, does not apply because this amendment only affects prospective applicants for license renewal. The primary impetus for the backfit rule was "regulatory stability." Once the Commission decides to issue a license, the terms and conditions for operating under that license would not be changed arbitrarily post hoc. As the Commission expressed in the preamble for 10 CFR 52, which prospectively changed the requirements for receiving design certifications, the backfit rule—

[W]as not intended to apply to every regulatory action which changes settled expectations. Clearly, the backfit rule would not apply to a rule which imposed more stringent requirements on all future applicants for construction permits, even though such a rule might arguably have an adverse impact on a person who was considering applying for a permit but had not done so yet. In this latter case, the backfit rule protects the construction permit holder, but not the perspective applicant, or even the present applicant. (54 FR 15385-86; April 18, 1989).

Regulatory stability from a backfitting standpoint is not a relevant issue with respect to this rule. There are no licensees currently holding renewed nuclear power plant operating licenses who would be affected by this rule. No applications for license renewal have been docketed. It is also unlikely that any license renewal applications will be submitted before this rule becomes effective. Consequently, there are no valid licensee or applicant expectations that may be changed regarding the terms and conditions for obtaining a renewed operating license. Accordingly, this rule does not constitute a "backfit" as defined in 10 CFR 50.109(a)(1).

Furthermore, one reason the Commission is amending 10 CFR Part 54 is because of the concerns of nuclear power plant licensees who were dissatisfied with the previous requirements in 10 CFR Part 54 and urged the Commission to modify the rule to address their concerns. Under this circumstance, the policy objective of the backfit rule would not be served by undertaking a backfit analysis. Regulatory and technical alternatives for addressing the concerns with the previous 10 CFR Part 54 were analyzed and considered in the regulatory analysis that has been prepared for this rule. Preparation of a separate backfit statement would not provide any substantial additional benefit. Therefore, the Commission has determined that a backfit analysis

pursuant to 10 CFR 50.109 need not be prepared for this rule.

NEI commented that the NRC should review its determination regarding the application of backfit protection to license renewal. Although not clearly stated in its comments, NEI appears to argue that the protection afforded by 10 CFR 50.109 should apply in individual license renewal proceedings when the NRC seeks to impose requirements that "go beyond what is necessary for adequately managing the effects of aging on intended functions in the period of extended operation (i.e., enhancements)." NEI stated that in such cases, the NRC should perform an analysis to demonstrate that the proposed additional requirements will result in substantial increase in overall safety and that direct and indirect costs are justified relative to the safety benefit. Furthermore, NEI believes that if there are two or more means of adequately managing the effects of aging, cost must be taken into account in selecting an alternative.

The industry's desire for a special provision in the rule that would impose backfit-style requirements on the Commission's review is neither necessary nor appropriate. The intent of the license renewal rule is clear—to ensure that the effects of aging on functionality of certain systems, structures, and components are adequately managed in the period of extended operation. The Commission does not intend to impose requirements on a licensee that go beyond what is necessary to adequately manage aging effects. The focus of the industry's concern appears to be on potential disagreements between the Commission and renewal applicants regarding what is or is not considered "adequate" for managing the effects of aging. The Commission understands the industry's concern, but does not believe it appropriate or consistent with current practice to further limit (i.e., beyond the limits established by the rule) the NRC staff in its review of an application for a renewal license.

Additionally, the Commission sees no justification for requiring a consideration of costs among alternative aging management programs. The renewal process is designed such that a renewal applicant proposes the alternatives it believes manages the effects of aging for those structures and components defined by the rule. The NRC staff has the responsibility of reviewing the applicant's proposals and determining whether they are adequate such that there is reasonable assurance that activities authorized by the renewed license will continue to be

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conducted in accordance with the CLB.
The Commission believes that this
license renewal review must necessarily
be performed without regard to cost.

List of Subjects

10 CFR Part 2

Administrative practice and
procedure, Antitrust, Byproduct
material, Classified information,
Environmental protection, Nuclear
materials, Nuclear power plants and
reactors, Penalties, Sex discrimination,
Source material, Special nuclear
material, Waste treatment and disposal.

10 CFR Part 51

Administrative practice and
procedure, Environmental impact
statement, Nuclear materials, Nuclear
power plants and reactors, Reporting
and recordkeeping requirements.

10 CFR Part 54

Administrative practice and
procedure, Aging, Effects of aging,
Time-limited aging analyses,
Backfitting, Classified information,
Criminal penalties, Environmental
protection, Nuclear power plants and
reactors, Reporting and recordkeeping
requirements.

For the reasons set out in the
preamble and under the authority of the
Atomic Energy Act of 1954, as amended,
the Energy Reorganization Act of 1974,
as amended, and 5 U.S.C. 552 and 553,
the Commission is adopting the
following amendments to 10 CFR Parts
2, 51, and 54.

61 FR 65157

Published 12/11/96

Effective 1/10/97

*Reactor Site Criteria Including Seismic
and Earthquake Engineering Criteria
for Nuclear Power Plants*

See Part 100 Statements of Consideration

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART 55

OPERATORS' LICENSES

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licenses to operators and senior operators; (2) revise the requirements and scope of written examinations and operating tests for operators and senior operators, including a requirement for a simulation facility; (3) codify procedures for administering requalification examinations; and (4) describe the form and content for operator license applications. The rule is necessary to meet NRC responsibilities under Section 306 of the Nuclear Waste Policy Act of 1982.

DATES: Effective Date: May 26, 1987.

Public meeting dates: April 9, 14, 16, and 20, 1987.

ADDRESSES: Public meeting locations: Public meetings will be held to discuss implementation of the requirements of this rule. The meetings will be held as follows:

A. April 9, 1987 for Region II, Richard B. Russell Federal Building, Strom Auditorium, Lower Level, 75 Spring Street, SW., Atlanta, Georgia.

Point of Contact: Mr. Kenneth E. Brockman, U.S. Nuclear Regulatory Commission, Region II, 101 Marietta Street, Suite 3100, Atlanta, GA 30323, (404) 331-5594.

B. April 14, 1987 for Regions IV and V, Stouffer Concourse Hotel, 3801 Quebec Street, Denver, Colorado (Across from Stapleton Airport).

Points of Contact: Mr. Ralph Colley, U.S. Nuclear Regulatory Commission, Region IV, Parkway Central Plaza Building, 611 Ryan Plaza Drive, Suite 1000, Arlington, TX 76011, (817) 860-8147.

Mr. Phillip Morrill, U.S. Nuclear Regulatory Commission, Region V, 1450 Maria Lane, Suite 210, Walnut Creek, CA 94596, (415) 943-3740.

C. April 16, 1987 for Region III, Ramada Hotel O'Hare, 6600 N. Mannheim Road (corner of Higgins), Rosemont, Illinois (One mile from O'Hare Airport), Phone: (312) 827-5131.

Point of Contact: Mr. Thomas Burdick, U.S. Nuclear Regulatory Commission, Region III, 799 Roosevelt Road, Glen Ellyn, IL 60137, (312) 790-5566.

D. April 20, 1987 for Region I, Hilton Hotel Valley Forge, 251 West DeKalb

Pike, King of Prussia, Pennsylvania, Phone: (215) 337-1200.

Point of Contact: Mr. Noel F. Dudley, U.S. Nuclear Regulatory Commission, Region I, 631 Park Avenue, King of Prussia, PA 19406, (215) 337-5211.

Background information for the rule includes a copy of the regulatory analysis, the supporting statement for the Office of Management and Budget clearance of the information collection requirements, Regulatory Guides, ANSI/ANS standards, NUREG-series documents, other documents discussed in this notice, and reports that contain a detailed analysis of the public comments received during the public comment period and their resolution may be examined at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

A single copy of the reports concerning public comments may be obtained from Chief, Operator Licensing Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-4868.

FOR FURTHER INFORMATION CONTACT: Chief, Operator Licensing Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-4868.

SUPPLEMENTARY INFORMATION:

I. Background

Section 107 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2137), requires the Nuclear Regulatory Commission to prescribe uniform conditions for licensing individuals as operators of production and utilization facilities and to determine the qualifications of these individuals and to issue licenses to such individuals. The regulations implementing these requirements are set out in Part 55 of Title 10, Chapter 1, of the Code of Federal Regulations. To assist licensees and others, the Commission also has issued regulatory guides and generic letters that provide guidance on acceptable methods of meeting these regulatory requirements.

52 FR 9453
Published 3/25/87
Effective 5/26/87

10 CFR Parts 50 and 55

Operators' Licenses and Conforming Amendments

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to (1) clarify the regulations for issuing

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The Commission has become increasingly aware of the need to update its operator licensing regulations and related regulatory guides. These revisions are needed to clarify the extent to which simulators should be used in licensing examinations and to reflect upgraded requirements for licensed operator selection, training, and requalification programs resulting from the accident at TMI-2. Although the Commission has been actively engaged in investigating these matters, the schedule for completing these activities was further accelerated by the enactment of January 7, 1983, of the Nuclear Waste Policy Act of 1982, Pub. L. 97-425. Section 306 of that act (42 U.S.C. 10226, 96 Stat. 2201 at 2262-2263) directs the NRC to establish (1) simulator training requirements for applicants for operator licenses and for operator requalification programs, (2) requirements governing NRC administration of requalification examinations, and (3) requirements for operating tests at civilian nuclear power plant simulators.

On November 26, 1984, the Commission published proposed amendments to 10 CFR Part 55, "Operators' Licenses" in the Federal Register (49 FR 46428). These amendments proposed granting, in part, a petition for rulemaking (PRM-55-1) that was filed by KMC, Inc. PRM-55-1 is discussed more fully under Section II.B, "Medical Requirements." A 90-day comment period expired on February 25, 1985. Comments were received from 88 respondents. An additional 47 respondents commented on the three associated regulatory guides, also issued for public comment. Reports that contain a detailed analysis of these comments and their resolution are available as indicated under "ADDRESSES".

These proposed revisions to 10 CFR Part 55 were to improve the operator licensing process and to achieve the following objectives:

- (1) Improve the safety of nuclear power plant operations by improving the operator licensing process and examination content.
- (2) Provide the NRC with an improved basis for administering operator licensing examinations and conducting operating tests, and
- (3) Respond to the specific direction given by Congress in Section 306, Nuclear Waste Policy Act of 1982, Pub. L. 97-425, to promulgate regulations and guidance in the area of examinations.

On March 20, 1985, the Commission published a Final Policy Statement on Training and Qualification of Nuclear Power Plant Personnel (50 FR 11147) that describes the Commission's current

policy regarding training of operators. In addition to this policy statement, the Commission is publishing the new rules described in this notice; these rules supercede all current regulations for operator licenses. Those facility licensees that have made a commitment that is less than that required by these new rules must conform to the new rules automatically. Those facility licensees that have made a commitment different from or more than that required by these new rules for license amendments and technical specification changes, may apply to the Commission so that they can conform to these new rules. Other changes should be made in accordance with 10 CFR 50.59.

Production facilities previously included in Part 55 are not referenced in the revisions since there are no operators at production facilities currently licensed by the Commission. Although special consideration has been given to the smaller size and scope of test and research reactors the requirements in this notice apply to all utilization facilities licensed under 10 CFR Part 50, including test and research reactors. Consequently, except where specific wording has been used to note different requirements, these rules apply to test and research reactors.

II. Summary of Public Comments and Final Actions

The proposed amendments to improve the operator licensing process have been modified in response to the comments received. A summary of the public comments and, where appropriate, a description of the changes that resulted from them follows.

(A) *General Comments*—(1) *General purpose of these amendments*. Several commenters provided general support for the proposed rule. Other commenters suggested changes to clarify the purpose and exemptions sections. These sections were reworded as a result of the evaluation of these comments. In particular, the purpose of the rule indicates that terms and conditions of operators' licenses and renewal are covered. Exemption for trainees at a facility is clarified to indicate that a trainee is only exempted while participating in an NRC-approved training program to qualify for an operator license. In addition, employees involved in fuel handling are exempt if they are supervised by a licensed senior operator.

(2) *Definitions*. Many commenters were concerned with the specific definitions in the rule. A number of commenters addressed the definitions of "simulation facility" and "Plant-referenced simulator," and requested clarification of the NRC's intent for the

use of such devices in the partial conduct of operating tests. Several commenters believed that only plant-referenced simulators would be permitted.

The definition of a "plant-referenced simulator" is intended to mean a simulator that meets all of the requirements of ANSI/ANS 3.5-1985, as endorsed by Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator License Examinations," (see Section V, Regulatory Guides, of this Supplementary Information).

The definition of a "simulation facility" is intended to provide for flexibility in the conduct of the simulator (non-plant-walkthrough) portion of the operating test. The intent is to permit, under circumstances specified in 10 CFR 55.45(b), the use of the plant itself, and/or a plant-referenced simulator, and/or some other type of simulation device such as a part-task or basic-principles simulator, for the conduct of the simulator portion of the operating test.

A number of commenters expressed concern that a plant, when used as a simulator, could not safely perform the full range of functions that a simulator could perform, and some commenters requested clarification about the limitation of the conditions under which the plant could be used.

It is not the intent of NRC to permit or encourage the initiation of transients on the plant when and if the plant is used as a simulation facility. The use of the plant is envisioned as a possible approach that a facility licensee might propose to use in conjunction with another simulation device or devices, in lieu of a plant-referenced simulator. This approach might be suitable, for example, for older plants without access to plant-referenced simulators, where manipulations of the plant, to the extent consistent with plant conditions, might be used to demonstrate familiarity with the plant for which the candidate would be licensed.

Several commenters suggested that the definition of "reference plant" should not be specific to a plant and its unit. The word "unit" has been deleted from this definition, although it remains the NRC's intent that a reference plant refer to a specific docket number. For those situations in which a multi-unit plant is composed of units from the same vendor and vintage, it is likely that only one simulation facility would be required. For others, Regulatory Guide 1.149 provides specific guidance for those facility licensees that want to consider the use of one simulation facility for use at more than one nuclear power plant. This guidance is based upon existing NRC policy on the granting of multiunit operator's licenses.

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(B) Medical requirements—(1)

Criteria for medical requirements. Most commenters agreed with the revisions to the medical certification process, which would require, for the usual case, a brief certification by the facility licensee on Form NRC-396, as revised. Some commenters questioned the relationship of these requirements to drug and alcohol problems and programs. Other commenters were confused about who would have responsibility for determining the medical condition of an operator or applicant for an operator's license. Some comments were made about the specific language in the medical requirements regarding disqualifying conditions and commenters requested changes or clarification. Many commenters noted the need to adjust the medical requirements to the renewal cycle.

The medical requirements reflect the industry standard articulated in ANSI/ANS 3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operating Licenses for Nuclear Power Plants."¹ The intent is to prevent the manipulation of the controls by an operator whose medical condition and general health would cause operational errors endangering public health and safety. The medical requirements rely on examination of the applicant or operator by a licensed physician who evaluates the medical condition of the operator, based on the criteria of ANSI/ANS 3.4-1983 that is endorsed by Regulatory Guide 1.134, "Medical Evaluation of Licensed Personnel for Nuclear Power Plants," and makes recommendations to the facility's management. The facility's management is responsible for certifying the suitability of the applicant for a license. The NRC has the responsibility for making an assessment of the applicant for a license, including the applicant's medical fitness. Neither the facility nor the NRC staff will make medical judgments. When a conditional license is requested, the NRC will use a qualified medical expert to review the medical evidence submitted by the facility to make a determination. For minor conditions, such as the need to wear corrective lenses or a hearing aid, the Form NRC 396 is modified to simplify the process for obtaining a medically conditioned license. Moreover, while the biennial medical examination required under § 55.21 is intended to detect alcoholism or drug dependency or both, no reference is made in the rule to alcohol or drug

problems. These issues are covered in a Policy Statement on Fitness for Duty of Nuclear Power Plant Personnel (51 FR 27921), published on August 4, 1986, by the Commission. In addition, the license renewal period is changed to 8 years to be compatible with the biennial medical examination requirements.

In July 1983, KMC, Inc., petitioned the Commission (PRM-55-1) "to simplify the procedure for the review of the medical status of applicants for operator... licenses." KMC stated that the current procedures require that a detailed medical history and results of the applicant's medical examination by a licensed physician be sent to the Commission. The petitioner requested that the Commission amend its regulations to permit designated medical examiners, as defined in ANSI N546-1976, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," to certify that the applicant has been examined (using the guidance contained in ANSI N546-1976 as endorsed by Regulatory Guide 1.134) and that the applicant's general health and physical condition is not such as may cause operational errors. Under the petitioner's request the use of the current NRC Form 396 would be discontinued for utility operators and detailed medical records would be retained by the licensee's designated medical examiner. Subpart C to Part 55 responds to the KMC, Inc. petition. NRC grants its request, in part, by eliminating the requirement to submit, in usual cases, medical information for an applicant for an operator's license directly to the NRC. Instead, as described above, a certification to NRC about compliance with the health requirements in § 55.33(a)(1) would be made by the facility licensee.

(2) *Notification of incapacitation because of disability or illness.* Some confusion was noted by several commenters regarding the process to notify the Commission when an operator was incapacitated because of disability or illness. The final rule is changed to reflect more clearly the Commission's intent. That is, if, during the term of the license, an operator's medical condition changes and does not meet the requirements set forth in ANSI/ANS 3.4-1983, notification of the Commission by the facility licensee is required. At the same time, if the examining physician indicates that the condition can be accommodated as noted in § 5.1 of the ANSI/ANS 3.4-1983, a conditional license may be requested by an authorized representative of the facility licensee. Form NRC 396 must be used and supporting medical evidence must be supplied. However, the facility licensee does not have to wait for

permission from the Commission before returning an operator to licensed duties, if the operator has been examined by a physician, who, using ANSI/ANS 3.4-1983 as a basis, has recommended to the facility's management that the operator can return.

(3) *Test and research reactors.* Many test and research reactor operators were concerned that the requirements in the rule changed the medical requirements for them. The rule changes only the requirements for test and research reactor facility licensees. It does not change the status quo for reactor operators, for whom ANSI/ANS-15.4-1977(N 380), "Selection and Training of Personnel for Research Reactors," requirements continue.

(C) *Applications.* Applications for an operator license require the facility licensee to certify that there is a need for the applicant to perform assigned duties. Several commenters were concerned that the "need" was not clearly defined. The requirements are intended to simply have the facility licensee's management internally review the need for the license before the application is made. Another concern of many commenters was the relationship between industry-accredited training programs and the details regarding training and experience needed to apply to the NRC on Form NRC-398. In addition, some commenters were concerned with the definition of the phrase "learned to operate." This phrase has been deleted from § 55.31 and replaced by wording which indicates that if a candidate successfully completes the training and experience requirements to be licensed as an operator, the NRC will conduct the appropriate examination and operating test. Section 55.31(a)(5) has been added to specify the minimum number of control manipulations to be conducted by an applicant. Details regarding other training and qualification will not be required to be supplied on Form NRC-398, if these requirements are contained in an NRC-approved training program that uses a simulation facility acceptable to the NRC under § 55.45(b). Subject to continued Commission endorsement of the industry's accreditation process under the Final Policy Statement on Training and Qualification of Nuclear Power Plant Personnel (50 FR 11147; March 20, 1985), a facility licensee's training program would be approved by being accredited by the National Nuclear Accrediting Board.

(D) *Written examinations and operating tests—(1) Content.* Most commenters recommended that the principal means of determining the knowledge, skills, and abilities to be

¹ Standards discussed in this rule are available for purchase from American Nuclear Society, 555 North Kensington Avenue, La Grange Park, Illinois 60525.

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included in operator licensing written examinations and operating tests should be the learning objectives derived from a systematic analysis of the job performance requirements. These commenters recommended that these learning objectives form the basis and scope of examinations and tests and that other sources of information should only be used until the learning objectives are available for a facility. Conversely, some commenters questioned as premature the endorsement by NRC of a systematic analysis from which to draw the content for licensing examinations and tests. One commenter recommended that NRC issue a document that specifically delineates what an operator is responsible for on NRC examinations and operating tests.

Systematic analysis of job performance requirements is an accepted methodology for deriving licensing examination content. The job-task analyses are being performed as part of the performance-based programs that are being implemented by facility licensees as part of the industry supported accreditation program. The learning objectives derived from these job-task analyses should form the basis for licensing written examinations and operating tests at a facility. Ultimately, the NRC testing objectives will reflect facility licensee-developed learning objectives. In the interim, while these programs are being developed and reviewed for accreditation, the NRC has activities underway to improve the content validity of NRC examinations and operating tests.

(2) *Specific wording of categories.* Many commenters made specific wording recommendations for the categories listed under content of the written examinations and operating test. These suggestions were reviewed by subject-matter experts and changes were made to clarify or improve the content categories. No major changes resulted except to two categories under the operating test. Under § 55.45, categories (12) and (13) were reworded as follows:

(12) Demonstrate the knowledge and ability as appropriate to the assigned position to assume that responsibilities associated with the safe operation of the facility.

(13) Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

(3) *Waivers.* Several commenters suggested that examinations and tests be automatically waived under specific circumstances. As the agency responsible for public health and safety

with regard to nuclear facilities, the Commission cannot waive its independent assessment of operators. Waivers are based on operators previously passing all or part of a licensing examination. Details regarding the processing of waivers are addressed in NUREG-1021, "Operator Licensing Examiner Standards."²

(4) *Integrity and examinations and tests.* Although many commenters supported the addition of § 55.49, "Integrity of Examinations and Tests," they felt that the penalties in § 55.71 were excessive. Other commenters were afraid that any action might be interpreted as cheating and that the role of facility licensees in enforcement was unclear. The NRC always has prosecutorial discretion not to take enforcement action in unclear cases. The language in § 55.71 on criminal violations only covers persons who "willfully violate" the Atomic Energy Act or the NRC's regulations and does not apply to situations such as discussions after an examination is administered or when a previously administered examination is used as a practice examination.

(E) *Simulation facilities—(1) Application process.* Many commenters were concerned with what they termed the burdensome procedure requiring initial and subsequent application for approval to use a simulation facility. Most of these commenters felt that certification by the facility licensee to the NRC that the simulation facility met industry standards should suffice, when combined with the NRC's ability to audit the simulation facility and review the supporting documentation.

The Commission has amended the final rule to reflect the position taken in these comments. Any facility licensee that proposes to use a simulation facility that meets the definition of a plant-referenced simulator (essentially a simulator that meets the requirements of ANS-3.5, 1985, "Nuclear Power Plant Simulators for Use In Operator Training," as modified by Regulatory Guide 1.149) will be required only to certify this to the Commission, and to maintain records pertaining to performance testing results for Commission review or audit. Any facility licensee that proposes to use a simulation facility that is other than a plan-referenced simulator will be required to submit a plan detailing how

² NUREG-series documents are available for public inspection and copying for a fee in the Commission's Public Document Room at 1717 H Street NW., Washington, DC. These documents may be purchased from the U.S. Government Printing Office (GPO) by calling 202-275-2060 or by writing the GPO, P.O. Box 37082, Washington, DC 20013-7082. They may also be purchased from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

the requirements of § 55.45 will be met on the alternative device or devices, followed by an application for NRC approval for use of the simulation facility. However, in response to the numerous comments received, this application process has been greatly simplified, and the requirement for a periodic "subsequent" application has been eliminated. In support of its certification or its application, as appropriate, each facility licensee will be required to conduct periodic performance tests on its simulation facility, and maintain records pertaining to the conduct of these tests and the results obtained.

It is the Commission's intent that those facility licensees that submit a certification for a simulation facility may immediately begin use of the certified simulation facility for the conduct of operating tests at the reference plant.

(2) *Performance testing.* Many comments addressed the requirement for the conduct of a series of performance tests, in which an extensive range of tests would be conducted over a 4-year cycle, 25 percent per year. The industry standard which was in effect at the time of the proposed rulemaking, ANSI/ANS 3.5-1981, required complete simulator performance testing every four years, and R.G. 1.149 endorsed that requirement. In addition, the R.G. specified that all malfunctions which a simulation facility was capable of performing should be tested to the extent that such malfunctions could be used in the conduct of operating tests. The majority of commenters felt that the burden of conducting these tests would demand an excessive amount of time on the part of the simulation facility as well as the facility licensee's staff. Numerous suggestions were made proposing lists of performance tests thought to be appropriate, suggesting alternative formulas for the cycle of performance testing, or offering suggestions that the rule merely endorse a new version of the industry standard which was in preparation at the time.

A new version of the standard, identified as ANSI/ANS 3.5-1985, was published after the expiration of the public comment period. In response to the comments received and to the newly issued industry standard, R.G. 1.149 has been changed to endorse the new standard, with exceptions, and to include in its endorsement the specific, limited list of malfunction performance tests contained in the standard. However, although the new standard continues to require the conduct of simulator performance tests, it has deleted the requirement that these tests be conducted on a four-year cycle for

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the life of the simulator. Instead it has substituted an annual operability test, and now required that performance tests be conducted only upon completion of initial simulator construction and in the event that simulator design changes result in significant simulator configuration or performance variations.

In addition, the standard is silent on the subject of periodic testing of malfunctions. The NRC endorsement of the standard in the R.G. takes exception to the deletion of periodic performance testing. The regulations will require performance testing to be conducted throughout the life of a simulation facility, on a four-year cycle, at the rate of approximately 25 percent per year.

The protection of public health and safety requires that licensed operators not only be proficient in general operations but be able to safely cope with plant transients and malfunctions. Thus a reactor operator license candidate's response to malfunctions during an operating test is an important factor in the examiner's assessment of that candidate's performance. It is also necessary to avoid misleading or negative training, which could result from the use of a simulation facility which does not correctly portray plant response to malfunctions. Therefore the ability of a simulation facility to faithfully portray plant malfunctions as well as general operability is to be verified by periodic performance testing. Such testing provides assurance that the simulation facility remains acceptable over time and continues to meet the Commission's regulations. A definition of performance testing has been added to § 55.4, and the requirements for performance testing have been clarified in the applicable paragraphs of § 55.45(b), as they apply to all simulation facilities, whether certified or approved.

(3) *Schedule.* A number of comments included criticism of the time schedules specified as being unreasonably short for submitting a simulation facility plan and for having a simulation facility in full compliance with the regulation.

The regulation has been changed to allow 1 year (versus 120 days) for a facility licensee to submit a plan detailing its approach to the simulation facility requirement; and to allow 4 years (versus 3) for its simulation facility to be in full compliance with the regulation. Those facility licensees that certify the use of a plant-referenced simulator will not have to submit a plan.

(4) *Penalty for unavailability of simulation facility.* Several comments expressed concern that the penalty was too harsh for the unavailability of a simulation facility acceptable to the Commission.

It is the Commission's intent that every facility licensee have available a simulation facility that meets the Commission's requirements within a reasonable period of time after the effective date of the rule, and that, once available, the simulation facility be maintained and upgraded, as needed, to continue its acceptability for the conduct of operating tests. The Commission recognizes that unique circumstances may arise on a plant-specific basis that cause some deviation from the time requirements established in the rule and that, from time-to-time, a previously certified or approved simulation facility may become temporarily unacceptable for the conduct of operating tests. It is the Commission's intent to address any such situations on a case-by-case basis.

(5) *Lack of guidance for assessment.* A number of comments expressed concern that the guidance to be used by the Commission in its assessment of simulation facility adequacy was not yet available. It is the Commission's intent that no simulation facility audits will be conducted until this guidance has been fully developed and made publicly available for a minimum of 6 months.

(6) *Applicability to future facility licensees.* Several commenters questioned whether the Commission's regulations regarding simulation facilities were intended to apply to future facility licensees.

It is the Commission's intent that these regulations apply to future facility licensees as well as current facility licensees.

(7) *Test and research reactor operators.* Several test and research reactor operators were concerned that the requirements in the rule changed the licensing process for them. As stated above, the rule does not change the status quo for this category of operator. The definition of "simulation facility" in § 55.4 allows the plant to be used to meet the requirements of § 55.45(b). In addition, specific wording in § 55.45(b) permits test and research reactor facility licensees to be exempted from submitting a plan for the use of a simulation facility that is other than a plant-referenced simulator.

(F) *Licenses—(1) Special senior operator licenses.* Many commenters questioned the issuance of special senior licenses. Several argued that current instructor certification requirements were sufficient, others indicated that industry-accredited programs include instructor evaluation, and others cited the Commission's Policy Statement on Training and Qualifications of Nuclear Power Plant Personnel as conflicting with these licenses.

The Commission has deleted the provision for the issuance of special

senior operator licenses from the final rule. This action is in recognition of the industry accreditation of training programs, which includes instructor training, qualification and evaluation, and is in keeping with the intent of the Commission Policy Statement on Training and Qualifications of Nuclear Power Plant Personnel. Industry efforts in implementing instructor training, qualification and evaluation programs will be monitored as described by the Policy Statement. Moreover, senior operator licenses limited to fuel handling will continue to be issued as they are currently. However, since industry accreditation includes instructor evaluation, current NRC instructor certification will not continue at facilities with industry accreditation.

A great number of commenters had specific suggestions regarding the requirements for special senior operators. These comments are no longer applicable since the Commission has deleted these licenses from the final rule.

(2) *"Actively performing the functions of an operator or senior operator."* Although only one commenter specifically questioned the definition of "actively performing the [functions] of," a great many commenters questioned this phrase in regard to R.G. 1.8. "Personnel Qualifications and Training for Nuclear Power Plants," as it was published for public comment in conjunction with the proposed rule. From the comments made in response to the regulatory guide and other comments made regarding the provision in the rule under "Requalification," which required that an operator or senior operator be "actively and extensively engaged" as an operator or senior operator, it is clear that many commenters were confused about the degree of participation in plant operations that is required as a condition to maintain an operator's or senior operator's license. To prevent further confusion, the rule has been modified in § 55.4, "Definitions," to provide the following definition:

Actively performing the functions of an operator or senior operator" means that an individual has a position on the shift crew that requires the individual to be licensed as defined in the facility's technical specifications, and that the individual carries out and is responsible for the duties covered by that position.

In addition, several commenters were concerned that the requirements were unclear regarding the return to "active" status following a period during which a licensee has not been "actively performing the functions of an operator or senior operator" for a period of 4

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months or longer. Therefore, the following requirements have been added:

If an operator has not performed licensed duties on a minimum of seven 8-hour shifts or five 12-hour shifts per quarter, before resumption of activities authorized by a license issued under these regulations, an authorized representative of the facility licensee shall certify that the qualifications and status of the licensee are current and valid, and that the licensee has completed a minimum of 40 hours of shift functions under the direction of the operator or senior operator, as appropriate, and in the position to which the individual licensee will be assigned. For licenses limited to fuel handling, one supervised shift is sufficient. Certification shall be maintained at the facility.

The revision in the wording of the rule was made so that it is no longer necessary to include the wording "actively and extensively engaged" under requalification. A licensee can now maintain licensed status by successfully completing the facility licensee's NRC-approved requalification program and passing the requalification examinations and operating tests. However, to return to active performance after a period of not participating on shift, the conditions of a license in § 55.53(f) must be met. In this manner, a licensee without current knowledge of the facility would not be able to perform shift duties.

For test and research reactors, the requirements for "actively performing the functions of an operator or senior operator" would be met with a minimum of four hours per calendar quarter. Similarly, under § 55.53(f), a minimum of six hours parallel work would be required to return to active status.

(3) *Notification of the Commission.* Some commenters noted that the Commission had no need to know about the criminal conviction of a licensee. However, § 55.53(g) is intended to cover criminal behavior. NRC is interested in felonious criminal convictions of a licensee. The NRC considers that there may be a relationship between conviction for a felony and job performance.

(G) *Expiration.* Currently, licenses expire after two years. To lessen the paperwork burdens of facility licensees and the NRC, a five year expiration was proposed. Many commenters suggested that the proposed five year expiration and renewal of licenses be adjusted to meet the biennial medical examination requirements. The renewal cycle has been changed and licenses will now expire after 6 years.

(H) *Requalification and renewal—(1) Requalification program and*

examination content. A great many commenters were unclear about the relationship of the NRC requalification requirements and performance-based training programs. Moreover, many commenters urged more flexibility in the requalification cycle and more clarity in the program content requirements.

Although the requirement for NRC approval of requalification programs will remain, the list of content areas under § 55.41, 55.43 and 55.45 will be referenced in § 55.59 to clarify the issue of examination and operating test content. In addition, § 55.59(c) content requirements (formerly Appendix A to 10 CFR Part 55) can be met with a performance-based program for a facility as approved by the NRC. In its Final Policy Statement on Training and Qualification of Nuclear Power Plant Personnel, the Commission endorsed industry-accredited programs as performance based. The frequency of the comprehensive requalification written examination has been changed to a maximum of every 2 years and of the requalification operating test to once a year. The requalification program must be conducted for a continuous period not to exceed 24 months. The specific cycle will be approved by the NRC as part of each facility's training program.

(2) *"Actively and extensively engaged."* As explained above, many commenters were concerned with the implementation of the provision for "actively and extensively engaged as an operator or senior operator" as it related to renewal. This provision is deleted in the final rule. This action complements the additions § 55.53 (e) and (f) to "Conditions of Licenses."

(3) *Test and research reactors.* Several commenters were concerned that the requalification requirements for operators at this class of reactor were changed. The requirements in § 55.59(c)(7) continue the requirements of former Appendix A to 10 CFR Part 55 for test and research reactors. No change in requirements is intended.

(4) *NRC administration of requalification examinations.* Some commenters questioned the NRC administration of requalification examinations. The Commission believes that an NRC administered examination for license renewal provides assurance that an operator or senior operator can operate the controls in a safe and competent manner and that a senior operator can direct the activities of other licensed operators in a safe and competent manner. The Commission also believes that NRC administered examinations provide assurance that facility licensee administered requalification programs are

successfully maintaining the proficiency and knowledge of licensed personnel. To this end, the rule requires in § 55.57 that each applicant for renewal of a six-year license pass an NRC administered comprehensive requalification written examination and operating test at least once during each six-year license. The NRC will administer these requalification written examinations and operating tests on a random basis so that no operator or senior operator will go longer than six years without being examined by the NRC once a six-year license is issued.

(I) *Modification and revocation of licenses.* Some comments were received about the Commission's authority to modify and revoke licenses. The Commission has the authority to modify, suspend or revoke a license under the Atomic Energy Act. Moreover, inherent in the Commission's authority to modify, suspend, or revoke a license is its ability to place a licensed operator or senior operator under probation, if warranted.

(J) *Editorial.* Many commenters had non-substantive editorial changes to suggest. These comments were reviewed by an NRC technical editor and incorporated as appropriate.

(K) *Conforming amendments.* A conforming amendment, 10 CFR 50.74, requires the facility licensee to notify the Commission of a change in operator status. This amendment complements § 55.53(g).

(L) *Revision to 10 CFR 50.54 and 10 CFR 50.34(b)(8).* Revisions have been made to 10 CFR 50.34(b)(8) and 50.54 to reflect the changes made to 10 CFR Part 55.

Separate Views of Commissioner Asseltine

This rule is a good idea, but it does not go far enough. The Commission should have required all licensees to obtain plant referenced simulators. There are two reasons for this. First, I believe that section 306 of the Nuclear Waste Policy Act of 1982 (Pub. L. 97-425) requires it. Second, plant referenced simulators are an excellent way for reactor operators to practice control manipulations for the plant and to actually see how the plant would respond. This is especially important in training the operators to deal with emergency or other situations when the plant is not in its normal state. It is a much more effective teaching tool for the operators to actually manipulate controls and watch the "plant" respond than to have them merely memorize emergency procedures. Further, a simulator which is referenced to the plant on which the operator will be

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licensed will be a much more effective training tool than one which is not.

The Commission decided, however, that because there might be special circumstances in some cases which would weigh against requiring that a particular utility purchase a simulator the Commission would not make it a requirement. This kind of case-specific special circumstances is precisely what our exemption procedures are intended to handle. If a licensee had appropriate justification, the Commission could always consider whether to grant an exemption to the regulation. Instead, the Commission chose to water down the regulation and require less.

Separate Views of Commissioner Bernthal

I fully support the Commission's broad objective that operators be reexamined on a regular basis. But I believe the final rule is too inflexible for good regulatory and administrative practice. NRC may indeed need to examine operators every six years; in some cases, perhaps more often. But if a licensee satisfactorily demonstrates its ability to conduct high quality, performance-based examinations in accordance with § 55.57(b)(2)(iii), such licensee performance may well justify extension or relaxation of this requirement. This approach would have been consistent with the Commission's policy of rewarding good licensee performance and focusing attention and resources on deficient performers. The Commission thus could have provided incentive to licensees and flexibility to the NRC examiner staff, and should have thereby focused NRC's limited regulatory resources where they are most urgently needed.

I also continue to believe that the time has come (given the decreased cost and increased sophistication of the technology) for all but a few small powerplants to be required to have plant reference simulators for operator training. While there may be some special cases that would qualify for exemption from such a requirement, on the basis of geography and/or plant similarity, licensees could in those circumstances apply for and receive an exemption.

III. Regulatory Analysis

The regulatory analysis describes the values (benefits) and impacts (costs) of implementing the proposed regulations and guidance for operator licensing. The accuracy of these estimates in the regulatory analysis is limited by the lack of extensive data on human performance improvement associated

with an improved licensing process. Where possible, quantitative measures were qualitatively compared to related information from other sources for verification. The full text of the regulatory analysis on these amendments is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from Chief, Operator Licensing Branch, telephone: (301) 492-4868.

IV. Backfit Analysis

The Commission has determined that these rules are in response to section 306 of the Nuclear Waste Policy Act of 1982 and, therefore, are exempt from the backfit rule 10 CFR 50.109 (50 FR 38097).

V. Regulatory Guides

Three regulatory guides were published in draft form for public comment in conjunction with the proposed rule. These guides were intended to provide guidance on acceptable methods of implementing the revisions to the regulations. As a result of public comment and additional staff review, these three guides are being issued in final form:

(1) R.G. 1.134, Revision 2, "Medical Evaluation of Licensed Personnel for Nuclear Power Plants."

(2) R.G. 1.149, Revision 2, "Nuclear Power Plant Simulation Facilities for Use in Operator License Examinations."

(3) R.G. 1.8, Revision 2, "Qualification and Training of Personnel for Nuclear Power Plants."

Copies of these guides may be purchased from the Government Printing Office at the current GPO price. Information on current GPO prices may be obtained by contacting the Superintendent of Documents, U.S. Government Printing Office, Post Office Box 37082, Washington, DC 20013-7082, telephone (202) 275-2060 or (202) 275-2171.

VI. Environmental Impact: Categorical Exclusion

The NRC has determined that this regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation.

VII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These paperwork requirements were approved

by the Office of Management and Budget approval number 3150-0018.

VIII. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule will not have a significant economic impact on a substantial number of small entities. The conforming amendment to 10 CFR Part 50 and the revision of 10 CFR Part 55 affect primarily the companies that own and operate light-water nuclear power reactors and the vendors of those reactors. They also affect individuals licensed as operators at these companies. Neither the companies that own and operate reactors nor these individuals fall within the scope of the definition of "small entity" set forth in section 501(b) of the Regulatory Flexibility Act, NRC's Size Standards adopted December 9, 1985 (50 FR 50241), or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121.

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 55

Manpower training programs, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Nuclear Waste Policy Act of 1982, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 55 and 10 CFR Part 50.

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of
Information

See Part 2 Statements of Consideration

53 FR 3861
Published 2/10/88
Effective 2/10/88

Change of Region I Address

See Part 1 Statements of Consideration

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53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes

See Part 1 Statements of Consideration

55 FR 41334
Published 10/11/90
Effective 11/13/90

10 CFR Part 55

RIN 3150-AD75

Submitting Applications for the Licensing of Test and Research Reactor Operators Directly to Headquarters

AGENCY: U.S. Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to require that test and research reactor facility applications for operator and senior reactor operator licenses be submitted to the responsible Headquarters office. This action is necessary to improve efficiency and consistency of examination and licensing of test and research reactor operators by having a central office monitor the issuance and renewal of licenses.

EFFECTIVE DATE: November 13, 1990.

FOR FURTHER INFORMATION CONTACT: David J. Lange, Acting Chief, Operator Licensing Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-1031.

SUPPLEMENTARY INFORMATION:

Background

The U.S. Nuclear Regulatory Commission (NRC) has decided to consolidate and return the responsibility for the issuance and renewal of licenses for reactor operators and senior reactor operators of test and research reactors (TRR) to the Headquarters office. Currently this responsibility is being administered individually by the operator licensing sections in the five regional offices. Increased demands by

the TRR community for improved efficiency and consistency of examination and licensing of TRR operators requires improved and dedicated oversight and management on a national scale, and from a central office. This administrative amendment does not affect existing licensing practice, pursuant to 10 CFR part 55, by requiring that each applicant submit their request for TRR reactor operator licenses directly to the NRC Headquarters.

As currently codified in 10 CFR part 55, "Communications," the communications path with the NRC relating to TRR operator licensing applications is to the five Regional Administrator Offices, and is in need of amendment. This administrative amendment to the regulation (10 CFR part 55) clarifies this regulation by requiring applicants for TRR operator and senior reactor operator licenses to communicate their requests for license examination directly to the responsible Headquarters office instead of submitting their requests to one of the five regional offices.

Waiver of Notice and Comment

Because these amendments deal solely with agency practice procedure, the notice and comment provisions of the Administrative Procedure Act do not apply as excepted by 5 U.S.C. 553(b)(A).

Environmental Impact: Categorical Exclusion

The NRC has determined that this amendment to the rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0018.

Regulatory Analysis

The regulations in 10 CFR part 55 establish procedures and criteria for the issuance of licenses to operators and senior operators of utilization facilities licensed pursuant to the Atomic Energy Act of 1954, as amended, or section 202 of the Energy Reorganization Act of 1974, as amended, and 10 CFR part 50. These established procedures provide for the terms and conditions upon which

the Commission will issue, modify, maintain, and renew operator and senior operator licenses.

This amendment to the rule will not affect existing practice regarding TRR operator licensing pursuant to 10 CFR part 55. This amendment only serves to notify the applicants for 10 CFR part 55 TRR operator and senior reactor operator licenses to submit their requests directly to the Headquarters office.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 55

Criminal penalty, Manpower training programs, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 55.

56 FR 32066
Published 7/15/91
Effective 8/14/91

10 CFR Parts 2 and 55

RIN 3150-AD55

Operators' Licenses

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to specify that the conditions and cutoff levels established pursuant to the Commission's Fitness-for-Duty Programs are applicable to licensed operators as conditions of their licenses. The final rule provides a basis for taking enforcement actions against licensed operators: (1) Who use drugs or alcohol in a manner that would exceed the cutoff levels contained in the fitness-for-duty rule, (2) who are determined by a facility medical review officer (MRO) to be under the influence of any prescription or over-the-counter drug that could adversely affect his or her ability to safely and competently perform licensed duties, or (3) who sell, use, or possess illegal drugs. The final rule will ensure a safe operational

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environment for the performance of all licensed activities by providing a clear understanding to licensed operators of the severity of violating requirements governing drug and alcohol use and substance abuse.

EFFECTIVE DATE: August 14, 1991.

FOR FURTHER INFORMATION CONTACT:

Robert M. Gallo, Chief, Operator Licensing Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-1031.

SUPPLEMENTARY INFORMATION:

Background

On June 7, 1989 (54 FR 24468), the NRC issued a new 10 CFR part 26, entitled "Fitness-for-Duty Programs," to require licensees authorized to construct or operate nuclear power reactors to implement a fitness-for-duty program. The general objective of this program is to provide reasonable assurance that nuclear power plant personnel will perform their tasks in a reliable and trustworthy manner, and not under the influence of any prescription, over-the-counter, or illegal substance that in any way adversely affects their ability to safely and competently perform their duties. A fitness-for-duty program, developed under the requirements of this rule, is intended to create a work environment that is free of drugs and alcohol and the effects of the use of these substances.

On April 17, 1990 (55 FR 14288), the NRC published in the *Federal Register* proposed amendments to 10 CFR part 55 to specify that the conditions and cutoff levels established in 10 CFR part 26, "Fitness-for-Duty Programs," are applicable to licensed operators as a condition of their licenses. These amendments also provide a basis for taking enforcement action against licensed operators who violate 10 CFR part 26. The proposed rule also described contemplated changes to the NRC enforcement policy. The comment period ended on July 2, 1990.

The Commission is adding specific conditions to operator licenses issued under 10 CFR part 55 to make fitness-for-duty requirements directly applicable to licensed operators. As pointed out in the supplementary information accompanying the promulgation of 10 CFR part 26, the scientific evidence shows conclusively that significant decrements in cognitive and physical performance result from the use of illicit drugs as well as from the use and misuse of prescription and over-the-counter drugs. Given the addictive and impairing nature of

certain drugs, even though the presence of drug metabolites does not necessarily relate directly to a current impaired state, the presence of drug metabolites in an individual's system strongly suggests the likelihood of past, present, or future impairment affecting job activities. More specifically, the Commission stated, "Individuals who are not reliable and trustworthy, under the influence of any substance, or mentally or physically impaired in any way that adversely affects their ability to safely and competently perform their duties, shall not be licensed or permitted to perform responsible health and safety functions." (See 54 FR 24468, June 7, 1989.) Although there is an underlying assumption that operators will abide by the licensees' policies and procedures, any involvement with illegal drugs, whether on site or off site, indicates that the operator cannot be relied upon to obey the law and therefore may not scrupulously follow rigorous procedural requirements with the integrity required to ensure public health and safety in the nuclear power industry.

The Commission believes strongly that licensed operators are a critical factor in ensuring the safe operation of the facility and consequently considers unimpaired job performance by each licensed operator or senior operator vital in ensuring safe facility operation. The NRC routinely denies Part 55 license applications or imposes conditions upon operator and senior operator licenses if the applicant's medical condition and general health do not meet the minimum standards required for the safe performance of assigned job duties. Further, under § 55.25, if an operator develops, during the term of his or her license, a physical or mental condition that causes the operator to fail to meet the requirements for medical fitness, the facility licensee is required to notify the NRC. Any such condition may result in the operator's license being modified, suspended, or revoked.

The power reactor facility licensee is further required under § 26.20(a) to have written policies and procedures that address fitness-for-duty requirements on abuse of prescription and over-the-counter drugs and on other factors such as mental stress, fatigue, and illness that could affect fitness for duty. The Commission expects each licensed operator or senior operator at these facilities to follow the licensee's written policies and procedures concerning the use and reporting requirements for prescription and over-the-counter drugs and other factors that the facility has determined could affect fitness for duty.

The use of alcohol and drugs can directly impair job performance. Other causes of impairment include use of prescription and over-the-counter medications, emotional and mental stress, fatigue, illness, and physical and psychological impairments. The effects of alcohol, which is a drug, are well known and documented and, therefore, are not repeated here. Drugs such as marijuana, sedatives, hallucinogens, and high doses of stimulants could adversely affect an employee's ability to correctly judge situations and make decisions (NUREG/CR-3196, "Drug and Alcohol Abuse: The Bases for Employee Assistance Programs in the Nuclear Industry," available from the National Technical Information Service). The greatest impairment occurs shortly after use or abuse, and the negative short-term effects on human performance (including subtle or marginal impairments that are difficult for a supervisor to detect) can last for several hours or days. The amendment to 10 CFR part 55 will establish a condition of an operator's license that will prohibit conduct of licensed duties while under the influence of alcohol or any prescription, over-the-counter, or illegal substance that would adversely affect performance of licensed duties as described by the facility's fitness-for-duty program. The amendment will be applicable to licensed operators of power and non-power reactors. This rulemaking is not intended to apply the provisions of 10 CFR part 26 to non-power facility licensees, but to make it clear to all licensed operators (power and non-power) through conditions of their licenses that the use of drugs or alcohol in any manner that could adversely affect performance of licensed duties would subject them to enforcement action.¹

As explained in the Commission's enforcement policy (see 53 FR 40027; October 13, 1988), the Commission may take enforcement action if the conduct of an individual places in question the NRC's reasonable assurance that licensed activities will be conducted properly. The Commission may take enforcement action for reasons that would warrant refusal to issue a license on an original application. Accordingly, enforcement action may be taken regarding matters that raise issues of trustworthiness, reliability, use of sound judgment, integrity, competence, fitness of duty, or other matters that may not necessarily be a violation of specific Commission requirements.

¹ It should be noted that discussion of fitness-for-duty programs of Part 50 licensees is only applicable for power reactor licensees.

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The Commission is amending § 55.53 to establish as a condition of an operator's license a provision precluding performance of licensed duties while under the influence of drugs or alcohol in any manner that could adversely affect performance. The Commission further amends § 55.61 to provide explicit additional notice of the terms and conditions under which an operator's license may be revoked, suspended, or modified. In addition, confirmed positive test results and failures to participate in drug and alcohol testing programs will be considered in making decisions concerning renewal of a part 55 license. These provisions will apply to any fitness-for-duty program established by a facility licensee, whether or not required by Commission regulations, including programs that establish cutoff levels below those set by 10 CFR part 26, appendix A. The Commission notes, however, that it has the discretion to forgo enforcement action against a licensed operator if the facility licensee established cutoff levels that are so low as to be unreasonable in terms of the uncertainties of testing. The Commission has reserved the right to review facility licensee programs against the performance objectives of 10 CFR part 26, which require reasonable detection measures. The revised rule will not impose the provisions of 10 CFR part 26 on non-power facility licensees. It is revised to make compliance with the cutoff levels and the policy and procedures regarding the use of legal and illegal drugs established pursuant to 10 CFR part 26 a license condition for all holders of a 10 CFR part 55 license.

Part 26 requires that facility licensees provide appropriate training to licensed operators, among others, to ensure that they understand the effect of prescription and over-the-counter drugs and dietary conditions on job performance and on chemical test results. The training also should include information about the roles of supervisors and the medical review officer in reporting an operator's current use of over-the-counter drugs or prescription drugs that may impair his or her performance. Licensed operators are required to follow their facility's policies and procedures regarding fitness-for-duty requirements.

Licensed operators will be subject to notices of violation, civil penalties, or orders for violation of their facility licensee's fitness-for-duty requirements. Therefore, in addition to amending the regulations to establish the 10 CFR part 55 licensed operators' obligations, the Commission is modifying the NRC

enforcement policy (Appendix C to 10 CFR part 2) in conjunction with the final rulemaking as described below.

In cases involving a licensed operator's failure to meet applicable fitness-for-duty requirements (10 CFR 55.53(j)), the NRC may issue a notice of violation or a civil penalty to a licensed operator, or an order to suspend, modify or revoke the license. These actions may be taken the first time a licensed operator fails a drug or alcohol test, that is, receives a confirmed positive test that exceeds the cutoff levels of 10 CFR part 26 or the facility licensee's cutoff levels, if lower. However, normally only a notice of violation will be issued for the first confirmed positive test in the absence of aggravating circumstances such as errors in the performance of licensed duties. In addition, the NRC intends to issue an order to suspend the part 55 license for up to three years the second time an individual exceeds those cutoff levels. If there are less than three years remaining in the term of the individual license, the NRC may consider not renewing the individual license or not issuing a new license until the three-year period is completed. The NRC intends to issue an order to revoke the part 55 license the third time an individual exceeds those cutoff levels. A licensed operator or applicant who refuses to participate in the drug and alcohol testing programs established by the facility licensee or who is involved in the sale, use, or possession of an illegal drug is subject to license suspension, revocation, or denial.

To assist in determining the severity levels of potential violations, 10 CFR part 2, appendix C, supplement I, is modified to provide a Severity Level I example of a licensed operator or senior operator involved in procedural errors which result in, or exacerbate the consequences of, an alert or higher level emergency and subsequently receiving a confirmed positive test for drugs or alcohol, two Severity Level II examples of (1) a licensed operator involved in the sale, use, or possession of illegal drugs or the consumption of alcoholic beverages within the protected area, or (2) a licensed operator or senior operator involved in procedural errors and subsequently receiving a confirmed positive test for drugs or alcohol, and a Severity Level III example of a licensed operator's confirmed positive test for drugs or alcohol that does not result in a Severity Level I or II violation.

Summary of Public Comments

Letters of comment were received from 39 respondents. One commenter wrote two letters, which brought the total number of responses to 40. Thirty-

one of the commenters wrote that the rule is unnecessary because the regulations already exist to ensure that the reactor operators adhere to 10 CFR part 26. The Commission agrees that the necessary regulations exist to have licensed power reactor operators comply with the provisions of part 26. However, the Commission realizes that the licensed operator is one of the main components and possibly the most critical component of continued safe reactor operation. Therefore, it wants to emphasize to and clearly inform the operators that as conditions of their licenses they must comply with their facility's fitness-for-duty program. The Commission also wants to clarify the term "use" versus "consumption" of alcohol in protected reactor areas. The rule has been rewritten to indicate that the "use of alcohol" means consumption of alcoholic beverages. The rule does not prohibit the use of alcohol within the protected areas for other than ingestion, such as application to the body. The use of medicine that contains alcohol is allowed within the parameters of the facility's fitness-for-duty program. However, use of over-the-counter or prescription drugs containing alcohol must be within the prescribed limitations and in compliance with the facility's fitness-for-duty program. Further, as 10 CFR part 26 does not apply to non-power reactor licensees, the Commission wishes to make it clear to licensed operators at these facilities that the use of drugs or alcohol in any manner that could adversely affect performance of licensed duties would subject them to enforcement action.

Twenty-eight of the commenters wrote that this rule singles out licensed operators for special treatment to the detriment of their morale. The Commission has considered the issue of morale and believes that most licensed operators already take their personal fitness for duty quite seriously. If there are any negative impacts on licensed operator morale these effects are expected to be short-lived as the vast majority of licensed operators will be unaffected. This rule may, in fact, increase operator confidence that their peers are fit for duty. This rule stresses to licensed operators that because of their critical role in the safe operation of their reactors, they must be singled out for special treatment to stress that their continuous unimpaired job performance is a highly necessary component of the overall safe operation of the reactors. The rule also stresses to licensed operators that their licenses are a privilege and not a right, and that refusal to participate in facility fitness-

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for-duty requirements can lead to enforcement action and/or licensing action. There has been no change to the rulemaking because of these comments.

Twenty commenters stated that it is an unnecessary burden that the proposed rule requires medical personnel to be available 24 hours a day to make judgments about prescription and over-the-counter drugs. Medical personnel are not required by part 26 or part 55 to be on duty 24 hours a day for prescription and over-the-counter drug evaluation. The intent of the rule is that licensed operators follow the facility fitness-for-duty program for supervisory notification of fitness-for-duty concerns about the use of legal drugs. The rulemaking has been clarified to more fully explain this intent.

There were two questions about the basis for the rulemaking—(1) What is the basis or need for the rule change? (2) Is it an industry wide problem? These questions were discussed above under the need for the rule (regulations already exist). The Commission can have nothing but a zero tolerance level for drug and alcohol use or abuse because of the critical nature of the industry. Therefore, the Commission deemed it necessary to stress compliance with facility fitness-for-duty programs as a condition of licensure. There is no change to the rulemaking as a result of these comments.

There was one question about the reporting of legal drugs. A licensed operator asked how operators who do not report medicinal use of drugs will be treated. Licensed operators are required to follow the fitness-for-duty program procedures and policies developed by their facility.

Two comments were specific to licensed operators at test and research reactor facilities. One was that formal drug testing programs should not be required for non-power facilities. These programs are not required by Part 26 or Part 55; however, if a fitness-for-duty program has been established at a non-power facility, licensed operators are required to participate. The second comment, regarding over-the-counter and prescription medication, was that medical review officers do not exist at non-power facilities. That statement is true; there are no requirements in either part 26 or part 55 that they do. No change to the rulemaking was required as a direct result of these comments. However, as a result of the previous comment regarding medical personnel availability, the rule was changed to clearly include supervisory notification when medical officers are not available.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0018.

Regulatory Analysis

The regulations in 10 CFR part 55 establish procedures and criteria for the issuance of licenses to operators and senior operators of utilization facilities licensed pursuant to the Atomic Energy Act of 1954, as amended, or section 202 of the Energy Reorganization Act of 1974, as amended, and 10 CFR part 50. These established procedures provide the terms and conditions upon which the Commission will issue, modify, maintain, and renew operator and senior operator licenses.

Subpart F of part 55, under § 55.53, "Conditions of Licenses," sets forth the requirements and conditions for the maintenance of operator and senior operator licenses.

This rule serves to emphasize to the holders of operator and senior operator licenses the conditions they are required to comply with under 10 CFR part 26, "Fitness-for-Duty Programs." A regulatory analysis has been prepared for the final rule resulting in the promulgation of part 26 and is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. This analysis examines the costs and benefits of the alternatives considered by the Commission for compliance with the conditions and cutoff levels. The Commission previously requested public comment on the regulatory analysis as part of the rulemaking proceeding that resulted in the adoption of part 26.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the NRC certifies that this rule will not have a significant economic effect on a substantial number of small entities. Many applicants or holders of operator licenses fall within the definition of small businesses found in section 34 of the Small Business Act (15 U.S.C. 632) or

the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121 or the NRC's size standards published December 9, 1985 (50 FR 50241). However, the rule will only serve to provide notice to licensed individuals of the conditions under which they are expected to perform their licensed duties.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this rule because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 55

Criminal penalty, Manpower training programs, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 2 and 10 CFR part 55.

57 FR 55062

Published 11/24/92

Effective 12/24/92

Clarification of Statutory Authority for
Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

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59 FR 5934
Published 2/9/94
Effective 3/11/94

10 CFR Part 55

RIN 3150-AE39

Renewal of Licenses and Requalification Requirements for Licensed Operators

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to delete the requirement that each licensed operator at power, test, and research reactors pass a comprehensive requalification written examination and an operating test conducted by the NRC during the term of the operator's 6-year license as a prerequisite for license renewal. The final rule requires that facility licensees shall have a requalification program reviewed and approved by the Commission and shall, upon request consistent with the needs of the Commission's inspection program, submit to the Commission a copy of its annual operating tests or comprehensive written examinations used for operator requalification for review by the Commission. In addition, the final rule amends the "Scope" provisions of the regulations pertaining to operators' licenses to include facility licensees.

The amendments will improve operational safety at each facility by redirecting NRC resources to administer the requalification program by inspecting and overseeing facility requalification programs rather than conducting requalification examinations. This, in turn, will reduce both licensee and NRC costs related to the program.

EFFECTIVE DATE: March 11, 1994.

FOR FURTHER INFORMATION CONTACT:
Anthony DiPalo, Office of Nuclear
Regulatory Research, telephone: (301)
492-3784, or Frank Collins, Office of
Nuclear Reactor Regulation, U.S.
Nuclear Regulatory Commission,
Washington, DC 20555, telephone (301)
504-3173.

SUPPLEMENTARY INFORMATION:

Background

Section 306 of the Nuclear Waste Policy Act (NWPA) of 1982 authorized and directed the NRC "to promulgate regulations, or other appropriate Commission regulatory guidance, for the training and qualifications of civilian nuclear power plant operators, supervisors, technicians and other appropriate operating personnel." The regulations or guidance were to "establish simulator training requirements for applicants for civilian nuclear power plant operator licenses and for operator requalification programs; requirements governing NRC administration of requalification examinations; requirements for operating tests at civilian nuclear power plant simulators, and instructional requirements for civilian nuclear power plant licensee personnel training programs." On March 25, 1987 (52 FR 9453), the Commission accomplished the objectives of the NWPA that were related to licensed operators by publishing a final rule in the **Federal Register** that amended 10 CFR part 55 and became effective May 26, 1987. The amendment revised the licensed operator requalification program by establishing (1) simulator training requirements, (2) requirements for operating tests at simulators, and (3) instructional requirements for the program (formerly appendix A to 10 CFR part 55). The final rule also stipulated that in lieu of the Commission accepting certification by the facility licensee that the licensee has passed written examinations and operating tests given by the facility licensee within its Commission approved program developed by using a systems approach to training (SAT), the Commission may give a comprehensive requalification written examination and an annual operating test. In addition, the amended regulations required each licensed operator to pass a comprehensive requalification written examination and an operating test conducted by the NRC during the term of the operator's 6-year license as a prerequisite for license renewal.

Following the 1987 amendment to part 55, the NRC began conducting

operator requalification examinations for the purpose of license renewal. As a result of conducting these examinations, the NRC determined that the existing regulations have established a high standard of licensee performance and that the NRC examiners were largely duplicating tasks that were already required of, and routinely performed by, the facility licensees.

The NRC revised its requalification examination procedures in 1988 to focus on performance-based evaluation criteria that closely paralleled the training and evaluation process used for a SAT based training program. This revision to the NRC requalification examination process enabled the NRC to conduct comprehensive examinations for the purpose of renewing an individual's license and, at the same time, use the results of the examinations to determine the adequacy of the facility licensee's requalification training program.

Since the NRC began conducting its requalification examination program, the facility program and individual pass rates have improved from 81 to 90 percent and from 83 to 91 percent, respectively, through fiscal year 1991. The NRC has also observed a general improvement in the quality of the facility licensees' testing materials and in the performance of their operating test evaluators. Of the first 79 program evaluations conducted, 10 programs were evaluated as unsatisfactory. The NRC issued Information Notice No. 90-54, "Summary of Requalification Program Deficiencies," dated August 28, 1990, to describe the technical deficiencies that contributed to the first 10 program failures. Since that time only 6 programs, of 120 subsequent program evaluations, have been evaluated as unsatisfactory.

Pilot requalification examinations were conducted during the period August through December 1991. The pilot test procedure directed the NRC examiners to focus on the evaluation of crews, rather than individuals, in the simulator portion of the operating test. In conducting the pilot examinations, the NRC examiners and the facility evaluators independently evaluated the crews and compared their results. The results were found to be in agreement.

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Furthermore, the NRC examiners noted that the facility evaluators were competent at evaluating crews and individuals and were aggressive in finding deficiencies and recommending remedial training for operators who exhibited weaknesses. The performance of the facilities' evaluators during the pilot examinations further confirmed that the facility licensees can find deficiencies, provide remedial training, and retest their licensed operators appropriately.

In June 1992, the Commission agreed with the staff to proceed with initiation of rulemaking to eliminate the requirement for each licensed operator to pass a comprehensive requalification written examination and operating test administered by the Commission during the term of the operator's 6-year license. On December 28, 1992, proposed amendments to 10 CFR part 55 on renewal of licensees and requalification requirements for licensed operators were submitted to the Commission for approval.

On May 20, 1993 (58 FR 29366), the Commission published a proposed rule in the **Federal Register** to amend 10 CFR part 55. The proposed amendments were to:

1. Delete the requirement that each licensed operator pass an NRC-administered requalification examination during the term of his or her license.
2. Require that facility licensees submit to the NRC their annual requalification operating tests and comprehensive requalification written examinations at least 30 days prior to the conduct of these tests and examinations.
3. Include "Facility Licensees" in the "Scope" of part 55.

The period for public comment on the proposed amendments ended on July 20, 1993.

Summary of Public Comments

The NRC received 42 comments on the proposed rule. Based on analysis of these comments, several changes have been made in the final rule. A summary of the public comments and, where appropriate, a description of the changes that resulted from them is discussed for each of the proposed amendments to 10 CFR part 55.

1. *Proposed Amendment:* Delete the requirement that each licensed operator pass an NRC-administered requalification examination during the term of a licensed operator's 6-year license.

General Statement: Of the 42 comments received, 36 favored this proposed amendment and 6 opposed its

adoption. Most of the respondents who favored the proposed change based their support on the expectation that this change would reduce the regulatory burden on licensees and would improve operational safety at nuclear facilities. One respondent indicated that while the NRC's involvement has had a positive impact on the content and conduct of licensee requalification, utilities have proven their ability to develop and administer requalification examinations that meet the requirements of 10 CFR 55.59(a)(2)(iii). Another respondent representing the utility industry stated that, "We believe the performance-based inspection process will be an effective means for ensuring high quality operator requalification programs." This respondent further stated, "The proposed rule change will also afford better operating crew continuity. Because personnel changes occur over time, operating crews may be configured with individuals who have or have not had an NRC administered exam. In the past, it has been a common practice to reconfigure crews to accommodate the NRC-administered requalification examination by putting together individuals whose 6 years is about to end. Use of this practice to facilitate the conduct of requalification exams may not be in the best interest of crew coordination and teamwork."

The six comments in opposition to the proposed amendment to delete the NRC-conducted requalification examination varied in content. For example, two public citizen respondents were against a rule change of any kind on the basis it would give the public the perception that the NRC's authority over the operation of power and non-power reactor plants would be weakened. Two respondents, one representing a State public service department with oversight of a nuclear power plant and a second representing a State nuclear safety department, urged that from a defense-in-depth standpoint to reactor safety the proposed rule should be reconsidered. The State of Vermont, in two separate comments, indicated that it was because of the current regulation that the NRC was able to detect the unsatisfactory requalification program at Vermont Yankee and identify corrective actions to ensure safety of the plant. The State of Illinois contended that the current regulations provided incentive for licensees to maintain quality operator training programs and that the likelihood of further improving or even maintaining that quality without the periodic independent involvement by the NRC is unlikely. The State of Illinois recommended a combination of routine

NRC inspections of crew examinations on a plant simulator and a periodic independent test administered simultaneously to all licensed operators every 6 years. Finally, one respondent was opposed to this amendment, especially its application to test and research reactors and suggested the existing rule be deleted because the regulatory analysis for the 1987 rule stated that the rule would not apply to non-power reactors (NPR). This same respondent believed it important to maintain NRC staff competence in relation to NPR operator licensing and felt this could be accomplished by maintaining a nucleus of specialized qualified personnel, either as part of or in conjunction with the NPR directorate, and through specialized training and administration of initial examinations, which occur rather frequently.

Response: After reviewing the six comments opposing the proposed regulation, the Commission has concluded that the basis for this requirement remains sound and that it should be adopted. This determination is based on the following considerations:

(i) The NRC believes that since the beginning of the requalification program, experience indicates that weaknesses in implementation of facility licensee's programs are generally the root cause of deficiencies in the performance of operators.

(ii) The NRC believes if its resources were directed towards inspection and oversight of facility licensee's requalification programs rather than continuing to conduct individual operator requalification examinations, the operational safety at each facility will continue to be ensured and in fact, will be improved. A routine inspection frequency of once per SALP cycle will ensure consistency between inspection scheduling and licensee performance. A minimum routine inspection frequency of at least once every 2 years will ensure active NRC oversight of facility licensee's requalification programs. For facility licensees with good performance, consideration will be given to not performing an onsite inspection during the SALP period.

(iii) The NRC believes that the facility requalification programs have been demonstrated to be basically sound during the pilot examinations. Given the broad range of possible approaches built into the inspection process, the NRC would only conduct examinations when they are the most effective tool to evaluate and understand the programmatic issues, or if the NRC loses confidence in the facility licensee's ability to conduct its own examinations.

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Examples which could result in a regional management decision for a "for cause" requalification examination include:

- a. Requalification inspection results which indicate an ineffective licensee requalification program;
- b. Operational problems for which operator error is a major contributor;
- c. A SALP Category 3 rating in plant operations attributed to operator performance; and
- d. Allegations regarding significant training program deficiencies.

When conditions such as these exist, the NRC may initiate planning to conduct requalification examinations during the next annual examination cycle scheduled by the facility.

Regarding the comments from the State of Vermont, the proposed inspection program includes reviews, observations, and parallel grading of selected operating tests and written examinations by NRC examiners, reviews of operational performance, interviews of facility personnel, and a general inspection of the facility licensee's implementation of its requalification training program. Application of the inspection program in the case of Vermont Yankee would have disclosed discrepancies in evaluation of operator performance and also would have allowed insight to other, more programmatic, deficiencies. The requalification inspection program implements routine NRC inspections as recommended by the State of Illinois as well as "for cause" examinations.

The Commission believes the existing regulation should not be deleted in the case of non-power reactors, as recommended in the public comments. A continuing need exists for the regulation to apply to operators of all types of reactors. The proposed amendment will continue to ensure operational safety at non-power reactors by inspecting facility requalification programs rather than conducting requalification examinations. The NRC will maintain examiner proficiency by conducting examinations for initial license applicants.

2. Proposed Amendment: Require that facility licensees submit to the NRC their annual requalification operating tests and comprehensive requalification written examinations at least 30 days prior to conducting these tests and examinations.

General Statement: Of the 42 comments received, only 1 respondent favored the amendment as proposed. This response came from a university operated research reactor, stating that submitting requalification examinations by the facility to the NRC for review

prior to administering the examination was less burdensome, by comparison, than retaining the existing regulation. On the other hand, most respondents stated that submitting all examinations and tests to the NRC 30 days before their administration would place an undue burden on facility licensees and the NRC with little return on the investment. Several respondents offered alternatives that included shortening the lead time, requiring that the examinations and tests be submitted after they are administered, submitting the question banks from which the examinations are developed, and simply having the examinations available for on-site inspection.

Response: This requirement was included in the proposed regulation so that the NRC could evaluate the proposed examination materials, in conjunction with other information already available to the NRC, to determine the scope of the on-site inspection. However, the pilot inspection program has demonstrated that a facility's proposed examinations are not an absolute necessity in preparing for the on-site activities. In addition, those facility licensees' examination and simulator scenario banks that were evaluated were found to be adequate for an effective requalification program to be managed by the licensees' staffs. Although being able to review the proposed examinations at the NRC did save some on-site inspection effort, the inspectors were still able to complete the Temporary Inspection procedures within the time allowed (i.e., two inspectors on-site for 1 week).

The NRC believes that it will be advantageous to have selected examinations available for review at NRC offices in addition to other documentation customarily provided, consistent with the Commission's inspection program needs. During the on-site inspection, the inspectors will observe the facility evaluators administer written examinations and operating tests to the crews being evaluated. Although the facility examination may last several weeks, the NRC's on-site inspection usually lasts only one week. Normally, the NRC intends to request that the facility licensee submit only those written examinations or operating tests that will be administered during the week of the NRC inspection. Obtaining this examination material in advance of the inspection will allow the inspectors to prepare for their on-site inspection activities by reviewing the examinations or tests before they travel to the facility. This advance preparation will result in

a more effective use of on-site inspection time and reduce the burden on the facility licensee by placing fewer demands on their training staff during the examination week. Therefore, the NRC will delete the amendment to § 55.59(c) as proposed from the final rulemaking and will require instead that comprehensive written examinations or operating tests be submitted upon request consistent with the Commission's inspection program needs and sustained effectiveness of the facility licensee's examination and simulator scenario banks.

3. Proposed Amendment: Include facility licensees in the scope of 10 CFR part 55, specifically § 55.2, will be revised to include facility licensees.

General Statement: Only 1 of the 42 respondents to the FRN addressed and endorsed this provision of the proposed rulemaking.

Response: The NRC believes the absence of comments regarding this proposal substantiates the NRC's position that this is simply an administrative correction and does not materially change the intent of the regulation. The NRC considers this amendment as an administrative addition to these regulations. The NRC proposed this change to eliminate the ambiguities between the regulations of parts 50 and 55. Section 50.54 (i) through (m) already imposes part 55 requirements on facility licensees, and part 55 already specifies requirements for facility licensees. On this basis, the NRC has determined that the requirement should be adopted.

Finding of No Significant Environmental Impact: Availability

The Commission has determined that under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal Action significantly affecting the quality of the human environment and therefore, an environmental impact statement is not required.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150-0101.

The rule will relax existing information collection requirements for the separately cleared, "Reactor Operator and Senior Reactor Operator Licensing Training and Requalification Programs." The public burden for this

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collection of information is expected to be reduced by 3 hours per licensee. This reduction includes the time required for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding the estimated burden reduction or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (315-0101), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the values (benefits) and impacts (costs) of implementing the regulation for licensed operator requalification. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Anthony DiPalo, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3784.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. This rule primarily affects the companies that own and operate light-water nuclear power reactors and non-power research reactors. The companies that own and operate these reactors do not fall within the scope of the definition of "small entity" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR part 121.

Backfit Analysis

The staff believes that it could ensure and improve operational safety at each facility by directing its resources to inspect and oversee facility requalification programs rather than conducting requalification examinations. The staff's experience since the beginning of the requalification program indicates that weaknesses in the implementation of

the facility programs are generally the root cause of significant deficiencies in the performance of licensed operators. The staff could more effectively allocate its resources to perform on-site inspections of facility requalification examination and training programs in accordance with indicated programmatic performance rather than scheduling examiners in accordance with the number of individuals requiring license renewal. By redirecting the examiner resources, the staff expects to find and correct programmatic weaknesses earlier, and thus improve operational safety.

Currently, facility licensees assist in developing and coordinating the NRC-conducted requalification examinations. The assistance includes providing to the NRC the training material used for development of the written examinations and operating tests and providing facility personnel to work with the NRC during the development and conduct of the examinations. The Commission has concluded on the basis of the analysis required by 10 CFR 50.109, that complying with the requirements of this final rule would reduce the regulatory burden on the facility licensees by reducing the effort expended by the facility licensees to assist the NRC in developing and conducting NRC requalification examinations for licensed operators. A smaller increase in regulatory burden is anticipated due to a need for the facility licensee to provide data and support for periodic requalification program inspections.

As part of the final rule, facility licensees shall have a requalification program reviewed and approved by the Commission and shall, upon request consistent with the Commission's inspection program needs, submit a copy of its comprehensive written examinations or annual operating tests to the Commission. The NRC has determined that the pilot inspection program demonstrated that the facility's proposed examinations are not an absolute necessity in preparing for the on-site activities. Therefore, the NRC would request test submittal on a case-by-case basis consistent with the Commission's test inspection program needs and review these examinations for conformance with 10 CFR 55.59(a)(2)(i&ii). The NRC would continue to expect each facility to meet all of the conditions required of a requalification program in accordance with 10 CFR 55.59(c).

Licensed operators would not have to take any additional actions. Each operator would be expected to continue to meet all the conditions of his or her

license described in 10 CFR 55.53, which includes passing the facility requalification examinations for license renewal. Each licensed operator would be expected to continue to meet the requirements of the facility requalification training program. However, the licensed operator would no longer be required to pass a requalification examination conducted by the NRC during the term of his or her license in addition to passing the facility licensee's requalification examinations, as a condition of license renewal.

The "Scope" of part 55, 10 CFR 55.2, would be revised to include facility licensees. This is an administrative addition to these regulations. It eliminates currently existing ambiguities between the regulations of parts 50 and 55. Part 50, in § 50.54(i) through (m), already imposes part 55 requirements on facility licensees, and part 55 already specifies requirements for facility licensees.

The Commission believes that licensed operators are one of the main components and possibly the most critical component of continued safe reactor operation, especially with respect to mitigating the consequences of emergency conditions. Two-thirds of the requalification programs that have been evaluated as "unsatisfactory" had significant problems in the quality or implementation of the plant's emergency operating procedures (EOPs). In some of these cases, the facility licensees did not train their operators on challenging simulator scenarios or did not retrain their operators after the EOPs were revised. The Commission believes that it could have identified these problems sooner by periodic inspection of facility requalification training and examination programs. Facility licensees could have then corrected these problems and improved overall operator job performance sooner.

This final rule will improve operational safety by providing the staff direction to find and correct weaknesses in facility licensee requalification programs. The experience gained from conducting NRC requalification examinations indicates that the NRC is largely duplicating the efforts of the facility licensees to maintain a high standard of operator performance. The NRC could now, by amending the regulations, more effectively use its resources to oversee facility licensee requalification programs rather than conducting individual operator requalification examinations. In FY92, the NRC resources committed to this program for NRC staff and contractor support were approximately 12 FTE and

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\$1.3 million (equivalent to 8 FTE), respectively. The staff projects that a slightly larger average number of examinations, requiring approximately 1.5 additional staff FTE and an additional \$200,000 contractual support (equivalent to 1.25 FTE), would be conducted in future years if the NRC continues conducting requalification examinations for all licensed operators. Thus, if it is assumed that without the rule change, this program would continue into the future, the relevant baseline NRC burden would approximate \$2.85 (1.35 NRC + 1.5 contractor) million per year in 1992 dollars for FY93 through FY97. The 13.5 (12 + 1.5) NRC staff years (FTE) were converted to \$1.35 million (\$100,000 per staff year) based on allowances for composite wage rates and direct benefits.¹

Under the final rule change, NRR's analysis indicates that NRC staff could perform all necessary inspections of requalification exam programs with 11 NRC FTEs and \$300,000 in contractor support, equivalent to 1.85 contractor FTEs, per year. At \$100,000 per NRC FTE and \$162,000 per contractor FTE, this converts to an annual cost in 1992 dollars of \$1.4 million. Thus, the annual savings in NRC operating costs is estimated to be on the order of \$1.45 million (\$2.85 million less \$1.4 million). Over an assumed 25-year remaining life, based on a 5% real discount rate, the 1992 present worth savings in NRC resources is estimated at about \$20.25 million in 1992 dollars.

Each facility licensee would continue in its present manner of conducting its licensed operator requalification program. However, this final rule reduces the burden on the facility licensees because each facility licensee would have its administrative and technical staff expend fewer hours than are now needed to assist in developing and conducting the NRC requalification examinations. Facility licensees are expected to realize a combined annual operational cost savings of approximately \$1.24 million. Over an assumed 25-year remaining life, based

on a 5% real discount rate, the 1992 present worth industry savings is estimated at about \$17.48 million in 1992 dollars.

In summary, the final rule will result in improved operational safety by providing more timely identification of weaknesses in facility licensees' requalification programs. In addition, the final rule would also reduce the resources expended by both the NRC and the licensees. The Commission has, therefore, concluded that the final rule meets the requirements of 10 CFR 50.109, that there would be a substantial increase in the overall protection of public health and safety and the cost of implementation is justified.

List of Subjects in 10 CFR Part 55

Criminal penalty, Manpower training programs, Nuclear power plants and reactors, Reporting and record-keeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the Nuclear Waste Policy Act of 1982; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR part 55.

59 FR 17464
Published 4/13/94
Effective 4/4/94

*Consolidation of the NRC Region V
Office With the Region IV Office*

See Part 20 Statements of Consideration

60 FR 13615
Published 3/14/95
Effective 4/13/95

*Reduction of Reporting Requirements
Imposed on NRC Licensees*

See Part 50 Statements of Consideration

61 FR 9901
Published 3/12/96
Effective 3/12/96

Minor Correcting Amendments

See Part 19 Statements of Consideration

¹ NRC labor costs presented here differ from those developed under the NRC's license fee recovery program. For regulatory analysis purposes, labor costs are developed under strict incremental cost principles wherein only variable costs that are directly related to the development, implementation, and operation and maintenance of the proposed requirement are included. This approach is consistent with guidance set forth in NUREG/CR-3568, "A Handbook for Value Impact Assessment," and general cost benefit methodology. Alternatively, NRC labor costs for fee recovery purposes are appropriately designed for full cost recovery of the services rendered and, as such, include non-incremental costs (e.g. overhead and administrative and logistical support costs).

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
60**

**DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES
IN GEOLOGIC REPOSITORIES**

STATEMENTS OF CONSIDERATION

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of Information

See Part 2 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI and GPA

See Part 30 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

54 FR 27864
Published 7/3/89
Effective 8/2/89

10 CFR Parts 2, 51, and 60

RIN 3150-AC04

NEPA Review Procedures for Geologic Repositories for High-Level Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is adopting procedures for implementation of the National Environmental Policy Act with respect to geologic repositories for high-level radioactive waste. In accordance with the Nuclear Waste Policy Act of 1982, as

amended, the Commission will adopt, to the extent practicable, the final environmental impact statement prepared by the Department of Energy that accompanies a recommendation to the President for repository development. The rule recognizes that the primary responsibility for evaluating environmental impacts lies with the Department of Energy; and, consistent with this view, it sets out the standards and procedures that would be used in determining whether adoption of the Department's final environmental impact statement is practicable.

EFFECTIVE DATE: August 2, 1989.

FOR FURTHER INFORMATION CONTACT:

James R. Wolf, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-1641.

SUPPLEMENTARY INFORMATION: Under applicable law, the Nuclear Regulatory Commission exercises regulatory authority with respect to the development, operation, and permanent closure of one or more geologic repositories for high-level radioactive waste and spent nuclear fuel. In connection with the exercise of this authority, the Commission is required by the National Environmental Policy Act of 1969 (NEPA), to give appropriate consideration to the environmental impacts of its actions. The scope of such consideration and the procedure to be followed by the Commission in fulfilling its NEPA responsibilities are addressed by the Nuclear Waste Policy Act of 1982, as amended (NWP). This statute directs the Commission to adopt the environmental impact statement (EIS) prepared by the Department of Energy (the applicant for the NRC license with respect to the repository) "to the extent practicable," with the further proviso that adoption of DOE's EIS shall be deemed to satisfy the Commission's NEPA responsibilities "and no further consideration shall be required." The Commission has been engaged in rulemaking to implement this statutory framework.

The Commission accordingly undertook a careful review of the text and statutory history of the pertinent provisions of the Nuclear Waste Policy Act. The results of this review were presented in the notice of proposed

rulemaking published in the *Federal Register* on May 5, 1988, 53 FR 16131. As summarized therein:

(1) The Commission will conduct a thorough review of DOE's draft EIS and will provide comments to DOE regarding the adequacy of the statement.

(2) If requested by Congress pursuant to the NWP, the Commission will provide comments on DOE's EIS to the Congress with respect to a State or Tribal notice of disapproval of a designated site.

(3) The NRC will find it practicable to adopt DOE's EIS (or any DOE supplemental EIS) unless:

(a) The action proposed to be taken by the NRC differs in an environmentally significant way from the action described in DOE's license application, or

(b) Significant and substantial new information or new considerations render the DOE EIS inadequate.

(4) The DOE EIS will accompany the application through the Commission's review process, but will be subject to litigation in NRC's licensing proceeding only where factors 3(a) or 3(b) are present.

In accordance with NWP, the primary responsibility for evaluating environmental impacts lies with DOE, and DOE would therefore be required to supplement the EIS, whenever necessary, to consider changes in its proposed activities or any significant new information.

The Commission received nine letters of comment in response to its notice of proposed rulemaking. The commenters were the State of Nevada (Nuclear Waste Project Office), the U.S. Department of Energy, the Council on Environmental Quality, the U.S. Environmental Protection Agency, and several private organizations (the Nevada Nuclear Waste Task Force, the Environmental Defense Fund, the Southwest Research and Information Center, the Sierra Club, and the Edison Electric Institute).

After reviewing and giving careful consideration to all the comments received, the Commission now adopts, in substantial part, the position set forth in its earlier notice. In particular, the Commission continues to emphasize its view that its role under NWP is

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oriented toward health and safety issues and that, in general, nonradiological environmental issues are intended to be resolved in advance of NRC licensing decisions through the actions of the Department of Energy, subject to Congressional and judicial review in accordance with NWPA and other applicable law. The Commission anticipates that many environmental questions would have been, or at least could have been, adjudicated in connection with an environmental impact statement prepared by DOE, and such questions should not be reopened in proceedings before NRC.

State of Nevada Comments

We begin with the comments presented by the State of Nevada not only because of its important sovereign interests, but because of the fundamental nature of the issues that are raised. In Nevada's view, NRC "poses, analyzes and answers the wrong question." According to Nevada, the question is how NRC should perform its own, independent, NEPA responsibilities and not how NRC should review and approve the adequacy of DOE's EIS.

Having posed the question in terms of responsibilities under NEPA, Nevada reviews the many cases that hold that where a major federal action involves two or more federal agencies, each agency must evaluate the environmental consequences of the entire project and determine independently whether the statutory requirements have been satisfied. NRC is not relieved from the responsibility of making such an independent determination, according to the State, because it would still be able to carry out its licensing responsibilities in a manner consistent with law. NRC, which is directed by NWPA to adopt the DOE environmental impact statement "to the extent practicable," need only do so to the extent that it is otherwise within the customary practice of the agency.

The views of the State bring the question into sharp focus. If the issue were properly to be posed as Nevada urges—i.e., with an assumption that the Commission's NEPA responsibilities are not modified by NWPA—then the regulatory language suggested in its comment letter would have merit. But the Commission firmly believes that the law was intended to have all matters associated with the environmental impacts of repository development considered and decided, to the fullest extent practicable, apart from NRC licensing proceedings. As explained when the proposed rule was published, this interpretation is supported both by the specific legislative and judicial review procedures built into the statutory structure and by the accompanying legislative history. The Commission believes that the result is

sensible. Concerns arising under NEPA—if not resolved through the negotiation procedures established by NWPA—would be adjudicated early, with finality, and with every reasonable argument being capable of being advanced to the oversight of Congress and the courts. From that point on, in the absence of substantial new information or other new considerations, it would be proper to inquire only whether the specific detailed proposal of the Department of Energy could be implemented in a manner consistent with the health and safety of the public. The resolution of issues in this manner for purposes of NEPA would in no event affect the framing or decision of health and safety issues, under the Atomic Energy Act, in NRC licensing proceedings.¹

Although quite different statutory schemes are involved, we perceive a parallel with issues raised in *Quivira Mining Company v. NRC*, 866 F.2d 1246 (10th Cir. 1989). That case concerned regulations adopted by NRC pursuant to the Uranium Mill Tailings Radiation Control Act of 1978. It considered, among other things, the extent to which NRC, in giving the "due consideration to economic costs" required by the statute, could rely upon a cost-benefit study previously carried out by the Environmental Protection Agency to support EPA's rulemaking responsibilities. The Commission concluded that since the agencies' actions coincided in material respects, all statutory language would retain significant force and effect, and the time period allowed for the issuance of its regulations was inadequate for an independent study. Congress did not wish to require the NRC to perform a second cost-benefit analysis. The Court found the legislative history, as well as the statutory language, to be ambiguous on the question; as such, it upheld the NRC construction. Here, given the identity of the actions being considered by the two agencies (DOE and NRC), we believe it to be a fair reading of Congressional intent that NRC can adequately exercise its NEPA decisionmaking responsibility with respect to a repository by relying upon DOE's environmental impact statement. As in *Quivira Mining*, the timing requirement—under NWPA, a three-year licensing process for a unique facility, involving standards of

exceptional complexity, requiring disputatious predictions of future human activity and natural processes for thousands of years—supplies practical support for our interpretation. Congress did not speak to the precise question of the standard to be used in deciding whether adoption of DOE's environmental impact statement is practicable; and if our construction is not the only one that might be proposed, it seems to us to be, at a minimum, "permissible."

Once DOE's EIS has been adopted, the statute expressly relieves the Commission from further consideration of the environmental concerns addressed in the statement. Congressional review of a State's resolution of disapproval—should such a resolution be passed—would permit (and, most likely, virtually ensure) that issues other than those to be adjudicated under the Atomic Energy Act would have been considered and weighed. Under these circumstances, it would do no violence to national environmental policy to proscribe further examination in administrative proceedings.

Council on Environmental Quality Comments

The Commission invited the Council on Environmental Quality to comment on the proposed rule. The conclusion of CEQ was similar to that of the State of Nevada. In particular, CEQ read the phrase "to the extent practicable" to mean that NRC should make an independent evaluation of the DOE environmental impact statement, adopting some or all of it as appropriate so as to avoid unnecessary duplication. From the Commission's perspective, though, the position does not fully take into account the detailed scheme for environmental review established by NWPA. Neither the related provisions of the statute (including, for example, those dealing with legislative and judicial review and establishing time frames for Commission decisionmaking) are analyzed, nor is there any examination of the legislative history which, as described in the preamble to the proposed rule, supports our point of view. We continue to believe that it is clear—at least in the debates of the House of Representatives with respect to the bill which, with amendments, was enacted into law—that the Commission role was intentionally to be directed to health and safety issues to the exclusion, absent new information or new considerations, of issues arising under NEPA.

It is worth noting, though, that CEQ recognizes that the Commission might "defer" to a court finding that the DOE environmental impact statement is adequate. This is certainly close, if not identical to, the Commission's position

¹ The State took exception to the standard for completeness of information in a license application—viz. the "reasonably available" standard of 10 CFR 60.24. Although the matter is not strictly at issue in this rulemaking, the Commission regards the State's concern in this regard to be overdrawn. While information may be sufficient to meet the requirements of § 60.24, this in no way implies that such information will prove to be sufficient to meet the applicant's burden of persuasion under § 60.31.

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that a judicial finding of adequacy would preclude further litigation of the matter in NRC licensing proceedings.

Comments of Environmental Organizations

The environmental organizations' comments included a number of arguments similar to those of the State of Nevada with respect to the Commission's customary NEPA responsibilities. As already indicated, it is our view that Congress intended, under NWPA, for NRC to accept the DOE EIS in the absence of substantial new considerations or new information. We reject the suggestion made by the Sierra Club that the approach we have outlined amounts to an abdication of any Commission responsibility.

In addition, however, a number of comments of somewhat narrower scope were submitted by environmental organizations (as well as by the State of Nevada) and are addressed here.

One matter that particularly concerned the private Nevada Nuclear Waste Task Force involved the relationship between the judicial process and the Commission's administrative process. The Task Force cautioned that NRC should not rely on there having been a court ruling with regard to the adequacy of DOE's environmental impact statement in advance of the Commission's licensing decision (when a judicial finding of inadequacy, affecting much or little of the EIS, could be treated as a new consideration). In fact, such reliance is not essential. It is our expectation that, under NWPA, a petition for review of the EIS would need to have been filed roughly contemporaneously with DOE's submission of a license application to NRC, and that judgment might have been entered within the three years envisaged for Commission licensing. Whether or not this proves to be the case is not controlling, for the standard for adoption does not rest upon collateral estoppel principles. Similarly, we find it beside the point to speculate regarding the possibility that a reviewing court might delay its decision on the adequacy until it sees the NRC conclusions in the licensing proceeding. Such delay would not stand in the way of the Commission's taking final action.

Although we thus do not rest our position upon the availability of a prior judgment of a court, we reiterate our view, as described in the preamble to the proposed rule, that such a judgment, if entered, would be controlling on the question of the adequacy of the EIS; and if the EIS were found to be adequate, it would be practicable for the Commission to adopt it.

We were criticized for suggesting that members of the public might be precluded from raising issues anew on the grounds that they had been

represented by State officials in prior judicial proceedings. This position was claimed to be inconsistent with NRC intervention rules which, it is correctly argued, traditionally consider the interests of the state in which a facility is located as being distinguishable from the interests of particular members of the public who may be affected by the issuance of a license. Our first response is that our case law with respect to standing for purposes of intervention does not necessarily apply in the context of collateral estoppel or issue preclusion, where the policies of repose come into play. But, in addition, we would reach the same result even if informed members of the public were not constrained by the putative prior judgment against the state; for in that event their failure to pursue their claims within the 180 days specified by section 119 of NWPA would operate as a bar.

The Commission's position that failure to challenge DOE's environmental impact statement promptly in the courts bars subsequent challenge to that EIS in NRC proceedings was also criticized. Commenters suggested, instead, that affected parties may decide for reasons of litigative strategy or otherwise to contest questions regarding the repository in NRC licensing proceedings rather than by going to court about the DOE environmental impact statement. But such a unilateral decision on their part cannot operate as a means to circumvent the clear policy of the NWPA requiring prompt adjudication of the issues raised by the EIS. When there has been a full and fair opportunity to raise the challenge, a party's failure to avail itself should in our view be regarded as an abandonment of its right to do so many years later. *See Oregon Natural Resources Council v. U.S. Forest Service*, 834 F.2d 842, 847 (9th Cir. 1987).

There is force to a commenter's suggestion that our proposed rules failed to take account of an EIS having been prepared in connection with a Negotiator-selected site, in which case the Commission review would be governed by section 407 of NWPA, as amended, 42 U.S.C. 10247, instead of section 114, 42 U.S.C. 10134. One difference, as pointed out by the comment, is that for a Negotiator-selected site DOE makes no formal recommendation to the President and the President makes no decision with respect to approval of the site. This difference alone would not affect the approach we take to discharging our NEPA responsibilities, in part because we would expect early judicial review to be available even in the absence of a Presidential decision. In this regard, NWPA authorizes a civil action to review any EIS prepared with respect to "any action" under the applicable subpart and, given our perspective on

the intended allocation of functions between DOE and NRC, "any action" could include the Secretary of Energy's submission of an application to the Commission. We think the intent of Congress, as evidenced by the considerable parallelism of the language employed, was generally to establish the same sort of role for the Commission with respect to any site—whether at Yucca Mountain or at a Negotiator-selected location. We recognize that it is our obligation "to consider the Yucca Mountain site as an alternate to (the Negotiator-selected site) in the preparation of" an EIS. This obligation will be discharged, though, to the extent of our adoption of the DOE environmental impact statement, provided that the alternative sites were addressed therein.

One aspect of the Negotiator-selected site provisions does have to be taken into account, however. For a Negotiator-selected site, a Commission decision to adopt the environmental impact statement must be made "in accordance with § 1506.3 of Title 40, Code of Federal Regulations,"—a limitation that we found not to apply to the EIS submitted under section 114 of NWPA. Under the cited section of the CEQ regulations, the Commission may only adopt the DOE statement if it is "adequate." While a judicial decision on the point would be controlling, we would otherwise need to make an independent judgment in accordance with established practice. The final regulations reflect this possibility. In passing, though, we observe that we find nothing anomalous in having this responsibility in the case of a Negotiator-selected site but not in the case of the Congressionally-designated site at Yucca Mountain, for in the latter case there are opportunities for State disapproval and Congressional consideration that serve to provide a forum outside the Department for the evaluation of environmental concerns.

We are not persuaded by the comment that took exception to our requirement that needed supplements to the EIS would, as a general rule, have to be prepared by DOE—and that DOE's failure to comply with this requirement might be grounds for denial of a construction authorization. It seems to us that such supplementation by DOE would ordinarily be appropriate whenever, in the light of new information or new considerations, its proposed action may give rise to significant environmental impacts that were not addressed in its original EIS.

We were urged to reconsider our position with respect to the imposition of license conditions directed at mitigation of adverse environmental impacts. We had suggested that DOE could itself be held accountable for compliance with the mitigation measures described in its EIS, so that

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there was no need for them to be subject to litigation in NRC proceedings. The basis for our position is that the departure from planned mitigation measures may well be a major Federal action having significant environmental impacts, which would necessitate the preparation of an environmental impact statement for a project that was otherwise determined to be without significant impact. But, in any event, we see no basis for employing our regulatory authority in this instance to police DOE's compliance with its mitigation plans; it will be subject to no more and no less oversight from interested persons than would be the case for many other developmental projects carried out, after preparation of appropriate environmental documentation, by Federal departments and agencies. To permit the mitigation measures to be litigated in NRC administrative proceedings—legitimate as this may be in other contexts—would run counter to the direction of the NWPAA. It would bring in through the back door at least some of the contentions which, in our view, were to be settled in other forums.

An argument was made that amended section 114(f)(6)—which provides that "the Commission" need not consider enumerated factors in any EIS prepared with respect to a repository—indicates that Congress intended for NRC to issue its own EIS. The language in question appears to have been designed as an editorial measure, lacking substantive effect. The legislative history, cited with the proposed rule, demonstrates that no important change was being made in NRC's NEPA responsibilities, which under the 1982 statute were limited in the manner we have described. The statutory language is not surplusage, for NRC may have an obligation to prepare a supplemental EIS where there are new considerations or new information.

Department of Energy Comments

The Department of Energy, which is the prospective applicant affected by the proposed rules, agreed that NWPAA counsels against wide-ranging independent examination by NRC of environmental concerns during the course of the licensing proceedings. DOE also concurred with NRC's view that a judicial determination of adequacy of an EIS precludes further litigation of that issue and that failure to raise an issue within the time set out in NWPAA bars later challenge. The other DOE comments call for some clarification of the Commission's intentions, but do not prompt any fundamental change of the position that had previously been outlined.

For example, we can put to rest DOE's concern that NRC might defer its acceptance review of the license

application until the entire judicial review process on the EIS had run its course. Under the amendments, both as proposed and as adopted, the acceptance review applies only to the completeness of "the application," not "the application or environmental report" as under existing 10 CFR 2.101(f)(2).

We believe we can also satisfy DOE's concern with respect to our mention, at 53 FR 16132, that there may be a need for "multiple EIS's." The point being made was not that NRC might need to prepare its own EIS when DOE had already done so, but that the licensing process may involve more than one major federal action (for example, the construction of the repository on the one hand and the emplacement of waste on the other) that could necessitate the preparation of a supplemental EIS if not an entirely new one, if the impacts of such actions are not evaluated or properly encompassed in the initial EIS.

The responsibility for supplementation was another point of contention. DOE—along with some of the other commenters—argued that it would be inappropriate for it to be obliged to supplement its completed EIS in order to satisfy any independent NEPA responsibilities of the Commission. We agree with this statement. But, as DOE itself acknowledges, it might need to supplement the EIS if it were to make a substantial change in the proposed action or if significant new circumstances or information were to become available. That is all that is required by the regulatory language (10 CFR 60.24(c)).

However, in support of its position, DOE suggested that NRC adoption under the NWPAA provisions was related specifically to the EIS "submitted as part of the Department's recommendation to the President." But the language of Section 114(f) quite clearly applies to "any environmental impact statement prepared in connection with a repository proposed to be constructed" by DOE under NWPAA.

DOE is correct in pointing out that a supplemental EIS would not necessarily be required in the event of a substantial change in the proposed action, where the change and the impacts thereof had previously been considered in the original statement.

The principal remaining issue raised by DOE's comments concerns the appropriate role of NRC in DOE's NEPA activities. DOE suggests that NRC should be a "cooperating agency," a role that the Council on Environmental Quality has recognized as being appropriate in the licensor-licensee context. We are not persuaded. The

present situation is unique because—unlike the customary licensor-licensee situation—the particular statute guiding our approach (i.e., NWPAA) removes the balancing of environmental considerations from our independent judgment. Under these circumstances, it strikes us as particularly out of place for NRC to undertake the kind of critical evaluation that a "cooperating agency" should perform in the preparation of an EIS. The Commission, nevertheless, has jurisdiction and expertise that it can, and will, bring to DOE's attention as a commenting agency through the entire DOE NEPA process. We shall not hesitate, in particular, to raise concerns that might subsequently also require adjudication, under the standards of the Atomic Energy Act, in our licensing proceedings. Other issues, of course, can be identified in our comments as well. In other words, NRC as a commenting agency can and will play an important constructive role all the while from the scoping stage through preparation of the environmental impact statement; but as the sole responsibility for weighing the environmental impacts in support of a recommendation to the President is vested in DOE, DOE properly should be the agency with formal sponsorship of the EIS as well.

We respond, finally, to DOE's claim that the requirement for DOE to inform the Commission of the status of legal action on the repository is unnecessary, since this information is a matter of public record. As a general rule, the applicant has the burden of placing on the record those factual matters upon which NRC decisions may be predicated. Although we have not placed sole reliance upon principles of issue preclusion (collateral estoppel), it remains our position that a final judgment of a reviewing court with respect to the adequacy of the DOE final environmental impact statement would be controlling and would support our adoption of such FEIS. Accordingly, it is appropriate for DOE to report on the status thereof.

Industry Comments

Comments received from Edison Electric Institute generally supported the Commission's view that its essential responsibility under NWPAA is to address radiological safety issues under the Atomic Energy Act, and that the requirements of NEPA were substantively modified as they apply to the high-level nuclear waste program.

We decline to follow EEI's suggestion that issues related to adoption of DOE's environmental impact statement be made prior to the hearing process and outside the adjudicatory arena. As we have noted before, the impact statement does not simply "accompany" an agency recommendation for action in the sense

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of having some independent significance in isolation from the deliberative process. Rather the impact statement is an integral part of the Commission's decision. It forms as much a vital part of the NRC's decisional record as anything else. *Public Service Company of Oklahoma* (Black Fox Station, Units 1 and 2), CLI-80-31, 12 NRC 264, 275 (1980). Even though the range of issues to be considered in the hearing may be limited, the formal function of the environmental impact statement as an element of the licensing decision remains.

However, we find merit in EEL's proposal to fix an early schedule for the NRC staff to present its position on the practicability of adoption and for other parties to file contentions with respect to the practicability of adoption. Accordingly, the final rule requires the NRC staff to present its position on adoption at the time that the notice of hearing is published in the **Federal Register**. Any contentions filed by any other party to the proceeding must be filed within thirty days after the notice of hearing is published. In the event that "substantial new considerations or new information" subsequently arises, contentions concerning the practicability of adopting DOE's EIS that are filed after the 30-day deadline established in the rule must be accompanied by a demonstration of compliance with the late filing criteria in 10 CFR 2.1014.

Changes from the Proposed Rule

Section 51.67 Environmental Information Concerning Geologic Repositories

This section is revised to provide for the submission of environmental impact statements, pursuant to Title IV of NWPA, as amended, with respect to a Negotiator-selected site. A further change reflects DOE's comment that supplement would not be required where a modification to its plans had been previously addressed by its EIS.

Section 51.109 Public Hearings in Proceedings for Issuance of Materials License with Respect to a Geologic Repository

In the final rule, paragraph (a) incorporates a schedule for the staff to present its position on the practicability of adoption of the DOE environmental impact statement, and for the filing of contentions with respect thereto. Consistent with the recently-completed LSS (Licensing Support System) rulemaking, a period of thirty days after notice of hearing is provided for the submission of contentions.

Paragraph (c) is revised so that the special criterion for adoption, as discussed herein, will apply only with respect to the geologic repository at the

Yucca Mountain site. Any EIS for a Negotiator-selected site would be excluded from the application of this paragraph. A conforming change appears in paragraph (d).

Paragraph (e) is modified to emphasize that the Commission's customary policies will be observed except for adoption of an EIS prepared under Section 114. This is achieved by the insertion of the cross-reference ("in accordance with paragraph (c)") in the introductory clause. As the language has been modified, it permits the adoption of other DOE environmental impact statements with respect to a Negotiator-selected site in accordance with generally applicable law. This includes observance of the procedures outlined in 40 CFR 1506.3. This is addressed adequately in Appendix A to 10 CFR Part 51, Subpart A, and requires no further elaboration in the text of the rule.

Petition for Rulemaking

The Commission's earlier notice invited comments upon the related portions of a petition for rulemaking submitted by the States of Nevada and Minnesota, PRM-60-2A, 50 FR 51701, December 19, 1985. With the exception of the State of Nevada, none of the comments received by the Commission in response to the notice addressed the petition as such. The State of Nevada referred to the petition, recognized that some of the considerations therein have been mooted, and urged that alternative language be considered in the proposed rule, in place of that which they had recommended in the petition.

The section of the petition which provides language pertaining to the adoption of DOE's EIS (i.e., Section IV.3) is denied. However, the issues identified by the petition regarding the criteria and procedures for adoption of DOE's EIS have been considered in this proceeding. Although the language being promulgated differs from that proposed by the petitioners, the Commission is in full agreement with the petitioners' argument that adoption of DOE's EIS must not compromise the independent responsibilities of NRC to protect the public health and safety under the Atomic Energy Act of 1954. Our rulemaking approach is in fact designed to enhance our ability to address these health and safety issues as effectively and objectively as possible.

Environmental Impact: Categorical Exclusion

The NRC has determined that this regulation is the type of action described in categorical exclusions 10 CFR 51.22(c)(1) and (3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval numbers 3150-0021 and 0127.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 USC 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The only entity subject to regulation under this amended rule is the U.S. Department of Energy.

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and record keeping requirements.

10 CFR Part 60

High-level waste, Nuclear power plants and reactors, Nuclear materials, Penalty, Reporting and record keeping requirements, Waste treatment and disposal.

Issuance

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the National Environmental Policy Act of 1969, as amended, the Nuclear Waste Policy Act of 1982, as amended, and 5 U.S.C. 553, the NRC adopts the following amendments to 10 CFR Part 51, and related conforming amendments to 10 CFR Parts 2 and 60.

55 FR 10397
Published 3/21/90.
Effective 4/20/90

Preserving the Free Flow of Information to the Commission

See Part 30 Statements of Consideration

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56 FR 40664
Published 8/15/91
Effective 9/16/91

*Revisions to Procedures to Issue
Orders; Deliberate Misconduct by
Unlicensed Persons*

**See Part 2 Statements of
Consideration**

57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

61 FR 6762
Published 2/22/96
Effective 4/22/96

*Employee Protection Policies; Minor
Amendments*

See Part 19 Statements of Consideration

61 FR 64257
Published 12/4/96
Effective 1/3/97

10 CFR Part 60

RIN 3150-AD51

Disposal of High-Level Radioactive Wastes in Geologic Repositories; Design Basis Events

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations on the protection of public health and safety from activities conducted at a geologic repository operations area (GROA) before permanent closure. In particular, the final rule addresses the measures that are required to provide defense in depth against the consequences of "design basis events." These measures include prescribed design requirements, quality assurance requirements, and the establishment of a preclosure controlled area from which members of the public can be excluded.

EFFECTIVE DATE: January 3, 1997.

FOR FURTHER INFORMATION, CONTACT: Dr. Richard A. Weller, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-7287.

SUPPLEMENTARY INFORMATION:

Background

Under the Nuclear Waste Policy Act of 1982, as amended, the U.S. Nuclear

Regulatory Commission exercises licensing and related regulatory authority with respect to geologic repositories that are to be constructed and operated by the U.S. Department of Energy (DOE) for the disposal of high-level radioactive waste. The Commission's regulations pertaining to these geologic repositories appear at 10 CFR part 60. In recent years, NRC, in conjunction with its Federally-Funded Research and Development Center, the Center for Nuclear Waste Regulatory Analyses, completed a comprehensive review of the requirements of part 60 regarding their clarity and sufficiency to protect public health and safety. NRC focused particular attention on any matters that may be ambiguous, insufficient for their intended purpose, or inconsistent with other expressions of its regulatory policy. Independently, DOE conducted a similar review of part 60.

The NRC review identified deficiencies regarding the clarity and sufficiency of the current part 60 requirements to protect public health and safety for the full range of credible conditions or events that may occur at an operating repository, including those low-probability events that have potentially serious consequences. NRC also noted that certain elements of existing part 60 differ from counterpart requirements in other NRC rules where greater consistency in language would be beneficial. DOE's independent review of Part 60 requirements identified similar deficiencies in these requirements. To address these issues, DOE filed a petition for rulemaking (PRM), PRM-60-3, on April 19, 1990.

In response to the DOE petition and the results of the NRC review of part 60, the Commission published a proposed rule for public comment in the **Federal Register** on March 22, 1995 (60 FR 15180) to clarify the requirements for protection of public health and safety related to activities conducted at a GROA before its permanent closure. In particular, the proposed rule provided new and modified definitions for certain terms (including the definition of "important to safety," with reference to structures, systems, and components), dose criteria for accident conditions, and requirements for the establishment of a preclosure controlled area from which members of the public can be excluded when necessary. In an accompanying notice (March 22, 1995; 60 FR 15190) the Commission also granted in part, and denied in part, the specific proposals in the DOE petition. For a fuller discussion of the PRM, the proposed rule, and the partial grant/partial denial of the DOE petition, see

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the **Federal Register** notices cited above. As noted in the **Federal Register** notice for the proposed rule (60 FR 15180) and as intended in subsequent discussions in this notice, unless the specific context suggests otherwise, the terms "provisions," "requirements," "standards," and "criteria" are generally used interchangeably; the term "limit" (as in "dose limit") is generally used to refer to a specific type of requirement or criterion; and the term "rule" is generally used to refer to the entire set of requirements or criteria (e.g., part 60). This final rule completes NRC action related to PRM-60-3.

Lastly, the Commission notes that, consistent with the mandates of the Energy Policy Act of 1992, the Environmental Protection Agency (EPA) is developing site-specific environmental radiation protection standards for a potential repository at Yucca Mountain, Nevada. In this regard, the Act specifies that, within one year after promulgation of the EPA standards, the Commission must promulgate a rule so that Commission regulations are consistent with the new EPA standards. Although the primary focus of the new EPA standards is on the postclosure period of repository performance, the staff will ensure that the current modifications to part 60 proposed herein, which focus on the period of repository operations before permanent closure, are consistent with the new EPA standards. To the extent any inconsistencies between NRC and EPA requirements are identified, they will be addressed in the planned future rulemaking by NRC to address new EPA standards.

Public Comments on the Proposed Rule

A period of 90 days was specified in the **Federal Register** for public comments on the proposed rule. The Commission specifically sought public comments on: (1) The appropriateness of the proposed 0.05 Sv (5 rem) dose limit in new 10 CFR 60.136 as the repository design basis for protection of public health and safety during accident conditions, and (2) the rationale supporting the proposed 0.05 Sv (5 rem) dose limit. Ten sets of comments were received on the proposed rule from the following organizations and individuals: (1) The Clean Water Fund of North Carolina (CWFNC); (2) Mr. Vernon J. Brechin; (3) DOE, Office of Civilian Radioactive Waste Management; (4) EPA, Office of Federal Activities; (5) Nye County, Nevada, Nuclear Waste Repository Project Office; (6) Virginia Power Company; (7) Nuclear Energy Institute (NEI); (8) Environmental Coalition on Nuclear Power (ECNP); (9)

Wisconsin Electric Power Company; and (10) Mr. Marvin I. Lewis.

The principal issues raised in the comments are summarized below. (Comments that are duplicative, editorial, or beyond the scope of the rulemaking are not discussed herein but have been considered in the analysis of the public comments.) For the reasons indicated, the Commission has decided to adopt the amendments substantially in the form proposed in the March 22, 1995, **Federal Register** notice (60 FR 15180) but with the changes noted that reflect the Commission's analysis of the public comments.

1. Controlled Area—Waste Isolation

DOE noted that the supplementary information in the proposed rule referred to the "controlled area" as one " * * * (within which waste isolation is to be ensured after permanent closure)," DOE observed that this is inconsistent with the part 60 definition of "controlled area," which does not refer to waste isolation. DOE recommended that the Commission delete the parenthetical phrase in the supplementary information.

The Commission agrees that the parenthetical phrase does not properly characterize the definition of "controlled area." However, rather than deleting the parenthetical phrase altogether, the Commission has modified the phrase to accurately reflect the definition of "controlled area" and its focus on postclosure activities.

2. Multiple Failure Scenarios

DOE noted that the supplementary information under § 60.136 seemed to indicate that multiple independent failure scenarios would be considered to be Category 2 design basis events and observed that, typically, nuclear safety analyses are not required to assume multiple failures of safety-related systems unless they are all credible consequences of the initiating event. DOE recommended that the Commission clarify how it intends to review the acceptability of repository systems, structures, and components in the context of the new rule.

The Commission agrees with this comment and has revised the supplementary information to clarify how it intends to review the analysis in the DOE license application to demonstrate compliance with the requirements of § 60.136.

3. Probability Bounds for Design Basis Events

In the Section-by-Section Analysis of § 60.136 in the proposed rule, the Commission indicated that the lower

bound for Category 2 design basis events is on the order of 1×10^{-9} per year (i.e., events with probabilities of occurrence less than 1×10^{-9} per year would generally be screened from further consideration due to their negligible contribution to overall risk). DOE and NEI objected that this lower bound is much too low and unjustified. DOE recommended a lower bound of 1×10^{-6} per year and NEI recommended a lower bound in the range of 1×10^{-6} per year to 1×10^{-7} per year. On the other hand, ECNP recommended that the most improbable sequences and combinations of events and accidents (Category 2 and beyond) should be evaluated in repository accident analysis.

The Commission agrees with DOE and NEI that the lower probability bound discussed in the proposed rule for Category 2 design basis events is too low and is unjustified. The Commission considers that, on the basis of repository risk perspective, a lower probability bound of 1×10^{-6} per year is appropriate for these events. The Commission recognizes that the estimated consequences from Category 2 design basis events are somewhat limited and would not likely exceed several tenths of Sv (several tens of rem). At this consequence level, the estimated risk of cancer fatality from events with a probability lower than 1×10^{-6} per year is less than 1×10^{-8} per year. To put this risk in perspective, the International Commission on Radiological Protection¹ notes that a fatal cancer risk in the range of 1×10^{-6} to 1×10^{-5} per year from exposure to radiation would likely be acceptable to members of the public. As such, Category 2 design basis events which result in fatal cancer risks on the order of 1×10^{-8} per year or lower do not contribute significantly to individual risk. Accordingly, events with probabilities of occurrence lower than 1×10^{-6} per year can be screened from further consideration in repository risk analysis.

The Commission has revised the Section-by-Section Analysis of § 60.136 to reflect a lower bound for Category 2 design basis events on the order of 1×10^{-6} per year.

4. Definition of "Important to Safety"—Engineered Features

DOE noted that the phrase "engineered structures, systems, and components," currently in the definition of "important to safety," was removed from the new definition and

¹ Recommendations of the International Commission on Radiological Protection. ICRP Publication 26, January 1977.

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observed that it is clearly the intent of the regulation to apply the definition to engineered systems, not natural systems.

The Commission agrees with this comment and has revised the definition of "important to safety" to clarify this intent.

5. *Applicability of Environmental Protection Agency Standards to the Management and Storage of High-Level Waste*

DOE stated that the proposed rule did not address all of the regulatory uncertainty associated with dose limits for design basis events because both the existing rule and the proposed rule appear to require compliance with both EPA radiation protection standards and part 20 radiation standards and there is an inconsistency between these two standards. Virginia Power noted that the definition of "important to safety" establishes the part 20 limits that are referenced in 10 CFR 60.111(a) as the acceptance criteria for the Category 1 design basis events and concluded that this seems to be inappropriate. Virginia Power stated that part 20 establishes occupational dose limits and radiation dose limits for members of the public, that these limits are expressed as annual limits, and that these limits are associated with normal licensed activities—not design basis events. Virginia Power considered that it is not appropriate to use part 20 limits to evaluate specific events. Virginia Power further considered that acceptance criteria for design basis events are associated with the specific consequences of those events, as for example in § 60.136 for the Category 2 design basis events, and that appropriate acceptance criteria will need to be developed if Category 1 design basis events are retained by the final rule.

The Commission agrees with DOE that both the dose limits and the methodology for calculating doses to members of the public in the EPA standards differ from the dose limits and methodology for calculating doses to members of the public in part 20, subpart D. Notwithstanding the differences between these standards, the staff does not consider that there is any regulatory uncertainty regarding applicable dose limits for Category 1 design basis events. In DOE's demonstration of compliance, either the EPA standards or the part 20 standards may be more limiting or controlling than the other, but that does not relieve DOE of the requirement to comply with both standards. As such, the Commission has made no changes to the

proposed rule to address DOE's concerns about the differences between part 20 and the EPA standards.

The Commission disagrees with Virginia Power that part 20 limits are inappropriate. The Commission's numerical radiation protection standards are codified in part 20 and apply to operations at a geologic repository by virtue of 10 CFR 20.1002 and § 60.111(a). However, it is not the Commission's intent that it is necessary to use the annual limits in part 20 to evaluate specific Category 1 design basis events on an individual basis. Instead the Commission intends that the sum of the annual doses, exposures, and releases from all Category 1 design basis events shall not exceed the limits specified in part 20 and in the EPA standards.

6. *Preclosure Controlled Area*

DOE expressed a concern that the use of the word "immediately" in the definition of "preclosure controlled area" could lead to an implication that the boundary must be next to the GROA. DOE also expressed a concern that the use of the word "nearest" in § 60.136(b) (i.e., " * * * no individual located on or beyond the nearest boundary of the preclosure-controlled area * * * ") is confusing.

The Commission agrees with these comments and has: (1) deleted the word "immediately" in the definition of "preclosure controlled area" in 10 CFR 60.2, (2) changed the phrase "nearest boundary" to "any point on the boundary" in the definition of "important to safety" in § 60.2 and in the design requirements of the geological repository operations area in § 60.136(b).

7. *Definition of Site*

DOE recommended that the definition of "site" should include "preclosure" and "postclosure controlled areas."

The Commission agrees with this comment and has modified the definition of "site" to reflect its meaning during the period before permanent repository closure (i.e., the operational period), as well as the period following permanent closure.

8. *Effluent Control*

DOE stated that, with the deletion of the term "during normal operations," the application of the part 20 effluent limits invoked by § 60.111(a) is not clear. DOE recommended that 10 CFR 60.132(c)(1) be revised to clarify that the latter section is applicable only to Category 1 design basis events.

The Commission agrees with this comment and has revised § 60.132(c)(1)

to clarify that this section is applicable only to Category 1 design basis events.

9. *Criticality Control*

DOE noted that the Commission intended to clarify the requirements pertaining to criticality control, currently in 10 CFR 60.131(b)(7), but that some confusion concerning those requirements remains. DOE pointed out that the proposed criticality control requirements in § 60.131(h) refer to "isolation of radioactive waste," a phrase with postclosure connotations, while noting that systems "must be designed for criticality safety assuming occurrence of design basis events," a phrase which has preclosure implications. Furthermore, DOE argued that the last sentence in § 60.131(h) could be interpreted as requiring a deterministic demonstration of criticality safety over the entire period of regulatory concern. However, given the time frames involved, DOE considered probabilistic analyses to be an essential part of demonstrating long-term criticality safety.

The Commission considers that the applicability of the criticality control requirements proposed in § 60.131(h) is clear with respect to preclosure considerations but agrees with DOE that uncertainty remains with respect to the applicability of the criticality control requirements to the postclosure period. However, the Commission intends to address this remaining uncertainty in a future rulemaking to make the NRC requirements consistent with the revised EPA standards that are currently under development, as mandated by the Energy Policy Act of 1992. Accordingly, in this final rule, § 60.131(h) is promulgated, as proposed in the proposed rule.

10. *The Use of the Terms "Important to Safety," "Accidents," "Normal Conditions," "Anticipated Operational Occurrences," and "Design Basis Events" in part 60.*

CWFNC stated that there was not any ambiguity in the current use of the terms "important to safety" and "accidents" in part 60. ECNP stated that the terms "normal conditions," "anticipated operational occurrences," and "accidents" are not equivalent to nor adequately described by the term "design basis events."

The Commission disagrees with CWFNC that there is no ambiguity in the current use of the terms "important to safety" or "accidents" in part 60. The latter term is undefined in part 60, and there is uncertainty about its meaning with respect to the range of events the term encompasses. The full range of

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Category 1 design basis events would not generally be considered as "accidents," especially those events occurring regularly or moderately frequently. However, certain lower frequency Category 1 events, which occur one or more times during the operating lifetime of a facility and are otherwise known as "anticipated operational occurrences," have at times been identified as "accidents." But "anticipated operational occurrences" are conditions of normal operation which are not to be confused with the unlikely, but credible and potentially significant, Category 2 design basis events. As such, the current definition of "important to safety" is unclear with respect to its intended applicability to the design of structures, systems, or components for normal operations, including anticipated operational occurrences. Further, with the focus on protection of members of the public in unrestricted areas, the current definition of "important to safety" does not explicitly address protection for the occupational work force. The uncertainty is not related to interpreting the meaning of "unrestricted area" but, rather, is related to the narrow focus of public exposure in unrestricted areas. Lastly, the value of 0.005 Sv (0.5 rem) as a dose limit in unrestricted areas for "accident" conditions lacks consistency with a corresponding limit in Part 72 and with dose values established as guidance for selected accidents (fuel handling and cask drop events) at Part 50 facilities (commercial power reactors).

Notwithstanding the comments offered by ECNP, the Commission considers that the definition of "design basis events" in the proposed rule does adequately define that term and that the supplementary information in the proposed rule does adequately describe the relationship between the terms "normal conditions," "anticipated operational occurrences," "accidents," and "design basis events." In this regard, it was the Commission's intent to supplant undefined terms in the rule (i.e., "normal conditions," "anticipated operational occurrences," and "accidents") with a defined term (i.e., "design basis events").

For the above reasons, the Commission has not revised the definitions in the proposed rule for "design basis events." As discussed in items 4 and 6 above, editorial changes have been made to the definition of "important to safety," but these changes are unrelated to the arguments advanced by CWFNC or ECNP.

11. Radiation Protection Standards

CWFNC stated that a 0.005 Sv (0.5 rem) limit would not be overly protective of public health and safety and there is no reason to seek a weaker standard. CWFNC suggested modifying part 20 to clarify any ambiguities in radiation protection standards for repositories. ECNP offered a number of comments related to radiation protection standards:

- The Commission should require DOE to provide design basis accident analyses for more than undefined "critical design basis events, singly" and should require demonstration that doses would be kept far below the maximum permissible dose limits, with an as low as is reasonably achievable requirement at least comparable with that for operating reactors.
- The part 60 limits must be much more stringent than for operating nuclear facilities.
- The limit of radiation exposure should be no higher than the most restrictive exposure limit that EPA imposes for any licensee or other source of regulated nuclear activity.
- A 0.005 Sv (0.5 rem) limit should be impermissible for an individual dose from a waste site.
- The most stringent level of worker protection, better than part 20, should be required.
- Part 20 standards are not restrictive enough for the purpose of public health protection with respect to the storage and disposal of radioactive waste.
- The definitional alteration of the term "important to safety" is not adequate to assure health protection for the public because the proposed Categories 1 and 2 numerical limits for radiation exposures are based on standards that have failed to take into account the noncancer but adverse health effects of chronic low-dose radiation exposures that have been reported in the literature since development of NRC's part 20 revision.
- Extremely conservative radiation protection standards should be utilized in repository design and performance criteria, and a zero release facility design goal should be required for all radioactive waste management.
- An acceptable rationale for the 0.05 Sv (5 rem) dose limit proposed in the proposed rule is totally absent.

The Commission acknowledges that the 0.005 Sv (0.5 rem) dose limit in the definition of "important to safety" in the existing rule could be construed to be an implicit basis for designing structures, systems, and components to prevent or mitigate the consequences of accidents at the boundary of the

unrestricted area. On the other hand, the 0.005 Sv (0.5 rem) dose limit could also be interpreted more narrowly, to identify only those structures, systems, and components that are subject to additional design requirements and a quality assurance program to ensure performance of intended functions. See § 60.131(b) and § 60.151. In short, the 0.005 Sv (0.5 rem) dose limit in the definition of "important to safety" in the existing rule is, in the Commission's view, subject to conflicting interpretations.

As previously discussed, the Commission's comprehensive review of part 60 identified deficiencies in both the clarity and sufficiency of requirements to protect workers and public health and safety. Among the identified deficiencies is the regulatory uncertainty created by possible conflicting interpretations that could be given to the 0.005 Sv (0.5 rem) dose limit in the "important to safety" definition described above and by the absence of an explicit design basis dose limit in Subpart E of the existing rule. An objective of this rulemaking is, therefore, to resolve the uncertainty in part 60, as well as remedy the incomplete definition of "important to safety" that fails to address protection of both workers and members of the public during Category 1 design basis events (i.e., "normal conditions," including "anticipated operational occurrences"). The Commission has addressed these deficiencies with the addition of new § 60.136, which now provides explicit design basis accident dose criteria for repository structures, systems, and components, and modification of the definition of "important to safety" to include the broader interests of both worker and public health and safety for the full range of conditions or events that may occur before repository closure. The Commission believes that these amendments, as well as the others as described herein, clarify and enhance the provisions in the rule to protect worker and public health and safety.

It was not the intent of this rulemaking to modify, in any way, the Commission's numerical radiation protection standards. As discussed earlier, these standards are codified in part 20 and apply to operations at a geologic repository by virtue of § 20.1002, as well as § 60.111(a). The Commission believes that these standards continue to be appropriate for its licensees and provide adequate protection of worker and public health and safety at a repository. As such, comments by CWFNC and ECNP about possible modifications to the Commission's radiation protection

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standards as they would apply to an operating repository are beyond the scope of this rulemaking.

The Commission agrees with ECNP that the term "critical design basis events" is undefined and, in the Section-by-Section Analysis of § 60.21 of this final rule, has changed "critical design basis events" to "Category 2 design basis events." With regard to the scope of design basis accidents that should be considered in the license application, the Commission previously addressed this issue in the discussion of probability bounds for Category 2 design basis events and determined that events with probabilities of occurrence lower than 1×10^{-6} per year could be screened from further consideration due to their negligible contribution to individual risk.

Regarding the rationale for the 0.05 Sv (5 rem) dose limit in § 60.136, the Commission continues to believe that the potential risks to members of the public from an operating repository are very small. In light of this limited risk, the 0.05 Sv (5 rem) dose limit provides an adequate margin of safety and an appropriate basis for the design of repository structures, systems, and components to prevent or mitigate the consequences of low probability, but credible events. The Commission's reasoning behind the 0.05 Sv (5 rem) dose limit can be found in the Section-by-Section Analysis of § 60.136 that appears later in this notice.

12. Exclusion of the Public From Preclosure Controlled Area

Vernon J. Brechin objected to the use of the word "can" versus "will" in the description of preclosure controlled area.

The Commission disagrees with this comment. It is not the Commission's intention to generally exclude members of the public from the preclosure controlled area (which would be the "controlled area" as defined in 10 CFR 20.1003). However, access to the preclosure controlled area can be limited by the licensee for any reason (not necessarily one related to radiation protection). Within the preclosure controlled area will be a "restricted area" (as defined in § 60.2 and § 20.1003). Access to a restricted area must be controlled for purposes of radiation protection. Members of the public in the preclosure controlled area will be subject to the dose limits for members of the public in 10 CFR 20.1301. However, an individual who receives occupational dose in the preclosure controlled area will be subject to the occupational dose limits of part 20, subpart C. All doses in a

restricted area are occupational doses. The size of the preclosure controlled area is not specified by the regulations because it will be dependent upon the particular activities conducted during the operational period.

13. Definition of Design Basis Events

Virginia Power and NEI recommended that the definition of "design basis events" should make clear that the normal operations associated with receiving, handling, packaging, storing, emplacing, and retrieving high-level waste are not design basis events.

The Commission disagrees with this comment. It is the Commission's intent that events occurring regularly or frequently during the course of normal operations are considered as Category 1 design basis events. Category 1 design basis events effectively embody repository activities and conditions previously identified in part 60 as "normal operations, including anticipated operational occurrences." In this regard, the Commission intends the part 20 dose limits to be applicable to the conduct of repository activities, such as receiving, handling, packaging, storing, placing, and retrieving high-level waste.

14. Definition of "Important to Safety"—Function

Virginia Power noted that in the proposed rule, the definition of "important to safety" refers to "* * * (1) to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the requirements of (10 CFR) 60.111(a) for Category 1 design basis events; or * * *." Virginia Power recommended that this part of the definition should be revised to make it clear that the focus of important to safety is design basis events and *not* the normal operations that are described by the definition in the proposed rule.

The Commission disagrees with this comment. As explained in Item 13, the Commission intends that events occurring regularly or frequently during the course of normal operations are considered as Category 1 design basis events.

15. Definition of "Important to Safety"—Quality Assurance Issues

Virginia Power and NEI stated that the definition of "important to safety" proposed in the proposed rule would apply full Quality Assurance (QA) requirements to almost every system and component of the repository, and that the latter definition does not establish a graded QA system to

properly distinguish systems that are "important to safety" and ensure that the full QA program is only applied to those systems.

The Commission disagrees with this comment. When identifying items "important to safety," if it is determined that a particular structure, system, or component is essential to maintaining doses below part 20 limits during normal operations (or during any Category 1 design basis event), then that structure, system, or component must be designated as "important to safety." The list of structures, systems, and components "important to safety," as well as the list of engineered barriers "important to waste isolation," are collectively referred to as the "Q-list" and are subject to the QA provisions of part 60, subpart G. The Commission supports a graded approach to meeting the QA provisions of part 60. Such an approach is consistent with the NRC staff's "Technical Position on Items and Activities in the High-Level Waste Geologic Repository Program Subject to QA Requirements (NUREG-1318)." The guidance given in that technical position (TP) is still applicable under the rule's changes. The TP describes a graded application of QA measures consistent with that applied to other facilities (e.g., nuclear power reactors) licensed by the Commission. In this regard, the application of QA program requirements to repository structures, systems, and components would generally be commensurate with their importance to safety.

16. Design Bases—Similarities Between GROA Facility and Other Facilities Licensed by NRC

ECNP stated that it is wrong to liken design basis for a waste repository (or long-term storage) facility to design basis for an operating nuclear reactor or other contemporary nuclear facility because of the longevity of the hazard and uncertainties of future monitoring and control.

The Commission disagrees with this comment. The design bases provided in the rule are for operations at the GROA and not for postclosure performance. Because operations at the repository are expected to be similar to operations at other facilities licensed by the Commission (e.g., 10 CFR part 72 facilities), the Commission believes that it is appropriate that their design bases be comparable.

17. The Phrase "At All Times"

ECNP recommended that the phrase "at all times" should be retained throughout part 60.

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The Commission disagrees with this comment. The phrase "at all times" was originally included in the regulation to emphasize the need to design the GROA such that retrieval activities, if found necessary, would be conducted in accordance with part 20. The Commission continues to interpret the regulation in this manner but has removed the phrase "at all times" from § 60.111 in the rule to clarify that the limits of part 20 apply to Category 1 design basis events and that the separate design bases of § 60.136 apply for Category 2 design basis events. Further, the Commission recognizes that conformance to the regulations should not hinder any actions that are necessary to protect public health and safety, such as lifesaving or maintaining confinement of radioactive materials (May 21, 1991; 56 FR 23365). The phrase "at all times" is ambiguous in this respect and was therefore removed.

18. As High as Reasonably Achievable (AHARA) Design Standard for the GROA

ECNP recommended that NRC adopt an AHARA standard with respect to criteria for the design of the GROA. ECNP states that the purpose of such a standard would be to provide an extra measure of conservatism in the design. ECNP further states that, for an operating nuclear facility, regulatory changes over time that mandate tighter standards and reduced emissions can be accommodated by means of backfitting, but this is not so readily accomplished at a disposal facility.

The Commission disagrees with this comment and considers that the requirements of part 60, as amended in this rulemaking, are sufficient to ensure public health and safety. The Commission also considers that backfitting, if necessary, can be accomplished at a disposal facility.

Section-by-Section Analysis

Section 60.2. Definitions

The amendments involve 10 definitions needed in part 60.

The term "preclosure controlled area" is new. It is essentially the same as the term "preclosure control area" proposed by DOE in its petition (PRM-60-3) and corresponds closely to the term "controlled area," as defined in 10 CFR 72.3. The term "preclosure controlled area" is adopted because part 60 already refers to a "controlled area" (which area has been committed to use as a geologic repository and from which incompatible activities would be restricted following permanent closure). The function of the new term is to delimit an area over

which the licensee exercises control of activities to meet regulatory requirements. Control includes the power to exclude members of the public, if necessary. Because part 60 (unlike part 72) involves ongoing underground operations and timeframes of concern over centuries and millennia, language in the definition is included that, consistent with its function, limits the area to the surface and limits the duration to the period up to, and including, permanent closure.

The existing term "controlled area" is renamed "postclosure controlled area," to avoid any confusion or misunderstanding about this term in relation to its use in parts 20 and 72. However, no substantive change is intended for the "postclosure controlled area" because this is a change in nomenclature only. Consistent with this nomenclature change, the term "controlled area" is changed to "postclosure controlled area," where it appears in the definitions for "accessible environment," "disturbed zone," and "site."

The term "important to safety" is amended to address the issues previously discussed. The existing provision is unclear and fails to ensure proper levels of protection of public and worker health and safety for the broad range of conditions or events that might occur at a repository site. This is an important term because it is the predicate for required design features as well as required quality assurance measures that provide defense-in-depth. The Commission is retaining the quantitative features of the existing definition but is specifying different numerical limits for each of the two categories (1 and 2) of design basis events. The structures, systems, and components "important to safety" are those necessary: (1) To provide reasonable assurance that the requirements of § 60.111(a) would be observed for Category 1 design basis events; or (2) to prevent or mitigate Category 2 design basis events that could result in doses equal to, or greater than, the values specified in (new) § 60.136 to any individual located on or beyond any point on the boundary of the preclosure controlled area.

Although the term "design bases" appears in existing part 60, in § 60.21(c)(2), it was not defined. As the previous discussion makes clear, "design bases" should be understood in relation to that range of events, including external natural or man-induced events, that is taken into account in the design, and, in particular, in relation to conditions that could result in radiological consequences

beyond specified limits. The definition in part 72 is inserted, without change, into the list of defined terms in § 60.2.

The inclusion of a definition of "design basis events" serves two purposes. First, it identifies a set of events (referred to elsewhere as Category 1 design basis events) that must be taken into account in demonstrating compliance with the requirement to show, with reasonable assurance, that the provisions of part 20 will be met. (This set of events is described as " * * * those natural and human-induced events that are reasonably likely to occur regularly, moderately frequently, or one or more times before permanent closure of the geologic repository operations area.") Second, it identifies an additional set of events (previously referred to as Category 2 design basis events) that must be taken into account in applying the Commission's defense-in-depth philosophy. (This set of events is described as those " * * * other natural and human-induced events that are considered unlikely, but sufficiently credible to warrant consideration, taking into account the potential for significant radiological impacts on public health and safety.") The Commission recognizes that the criterion of "sufficiently credible to warrant consideration" is inexact, leaving its application to a consideration of the particular site and design that are the subjects of a license application. Generally, the Commission would expect that such design basis events would include as broad a range of external phenomena as would be taken into account in defining the design basis for other regulated facilities, including nuclear reactors. The Commission would also expect that the analysis of a specific design basis event would require an analysis which includes an initiating event (e.g., an earthquake) and the associated combinations of repository system or component failures that can potentially lead to exposure of the public to radiation.

The definitions of "restricted area" and "unrestricted area" are amended to conform with the definitions in part 20. The current definitions in part 60 do not precisely conform to the current part 20 because no change was made to these part 60 definitions when part 20 was revised.

The amendments of § 60.2 adopted in this final rule differ from the amendments of § 60.2 proposed in the proposed rule (March 22, 1995; 60 FR 15180) in the following respects: (1) The revised definitions of "restricted area" and "unrestricted area" were not proposed in the proposed rule; (2) in the

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definition of "important to safety," the phrases "features of the repository" and "nearest boundary" in the proposed rule were changed to "engineered features of the repository" and "any point on the boundary," respectively; (3) in the definition of "preclosure controlled area", the phrase "immediately surrounding the geologic repository operations area" in the proposed rule was changed to "surrounding the GROA"; and (4) in the definition of "site", the phrase "location of the postclosure controlled area" was changed to "location of the preclosure controlled area, or of the postclosure controlled area, or both." The rationale for the revised definitions of "restricted area" and "unrestricted area" is provided in the preceding paragraph. The rationale for the other changes is discussed under "Response to Public Comments on the Proposed Rule."

Section 60.8. Information Collection Requirements: OMB Approval

NRC is updating 10 CFR 60.8, "Information Collection Requirements: OMB Approval," to reflect the fact that subsequent to the original issuance of part 60, NRC requested, and obtained Office of Management and Budget (OMB) approval for the part 60 "Information Collection Requirements." Section 60.8 was to be corrected the first time other revisions were made.

The amendment of § 60.8 adopted in this final rule differs from the amendment of § 60.8 in the proposed rule (60 FR 15180) in that the term "Paperwork Reduction Act of 1980," in the proposed rule, has been changed to the term "Paperwork Reduction Act of 1995" in the final rule.

Section 60.21. Content of Application

The DOE petition suggested that provision for accident analysis might be accomplished by amendment of § 60.111. The Commission, instead, is requiring an accident analysis as part of the content of the application section (i.e., § 60.21). The language requires that the application address the potential dose, to any individual located on or beyond any point on the preclosure controlled area boundary, that is attributable to Category 2 design basis events. The procedure that is envisaged is that the applicant would address the Category 2 design basis events, singly, and demonstrate, by its analysis, that the doses to any individual located on or beyond any point on the preclosure controlled area boundary would be in accordance with the applicable requirements. The language serves the same purpose as the counterpart section of part 72 (namely, 10 CFR 72.24[m]).

The final rule also reflects the position that the applicant must demonstrate that the requirements of part 20 and the EPA standards will be met, assuming the occurrence of Category 1 design basis events. For this analysis, the applicant would calculate the sum of the doses, exposures, and releases from all Category 1 design basis events to ensure that these results do not exceed the limits specified in part 20 and in the EPA standards.

The Commission also is eliminating certain terms in Part 60 that are undefined and may be subject to differing interpretations—specifically, the terms "normal conditions," "anticipated operational occurrences," and "accidents." These terms are supplanted by the new term "design basis events." Besides enhancing clarity of expression, the new language better reflects the articulated regulatory framework. Lastly, where the term "controlled area" appears in the language of this section, it is changed to "postclosure controlled area."

Section 60.43. License Specification

The term "controlled area" is changed to "postclosure controlled area."

Section 60.46. Particular Activities Requiring License Amendment

The term "controlled area" is changed to "postclosure controlled area."

Section 60.51. License Amendment for Permanent Closure

The term "controlled area" is changed to "postclosure controlled area."

Section 60.102. Concepts

The term "controlled area" is changed to "postclosure controlled area."

Section 60.111. Performance of the Geologic Repository Operations Area Through Permanent Closure

The Commission is deleting the phrase "at all times" from the performance objective of § 60.111(a). This change clarifies that this requirement does not apply to radiation exposures, levels, and releases from Category 2 design basis events.

Section 60.121. Requirements for Ownership and Control of Interests in Land

The term "controlled area" is changed to "postclosure controlled area."

Section 60.122. Siting Criteria

The term "controlled area" is changed to "postclosure controlled area."

Section 60.130. Scope of Design Criteria for the Geologic Repository Operations Area

The Commission is modifying the title of this section to the term "General Considerations" and is adding clarifying language, to the existing discussion, to indicate that §§ 60.131 through 60.134 specify the minimum criteria for the design of those structures, systems, and components important to safety, or important to waste isolation. These changes are necessary to provide consistency with the modified definition of "important to safety" (§ 60.2), as well as to clarify the purpose of these criteria. These changes also provide consistency with the corresponding "minimum" design criteria, for an MRS, in part 72.

Section 60.131. General Design Criteria for the Geologic Repository Operations Area

Consistent with the modifications to § 60.130, as described above, the Commission is deleting the reference to "Structures, systems, and components important to safety," in the title of § 60.131(b), and re-numbering the current criteria in §§ 60.131(b)(1) through 60.131(b)(10), as appropriate. This change eliminates the confusion in the existing rule related to the identification of only the criteria in § 60.131(b) as "important to safety." It also resolves the present incongruity with § 60.131(b)(7), "criticality control," regarding the reference to waste "isolation" (a postclosure term) in the requirement.

The current rule employs the term "normal and accident conditions," or similar expression, in several places. However, the conditions that must be addressed under this language are not well-defined. The Commission is remedying this situation by replacing current terminology with references to "design basis events," thereby ensuring that the design appropriately takes into account the consequences of all design basis events (i.e., as discussed in this document, Category 1 and 2 design basis events). Accordingly, paragraphs (b)(5)(i), (b)(7), and (b)(8) are modified for this section. The Commission also is revising the language in § 60.131(b)(1), which refers to "anticipated" natural phenomena and environmental conditions, so as to encompass all design basis events. The "necessary safety functions" that must be accommodated in the design, pursuant to that paragraph, include whatever is necessary to meet the quantitative limits set out in the Commission's rules (i.e., in § 60.111(a) and § 60.136).

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As discussed under "Public Comments on the Proposed Rule," the Commission considers the applicability of the criticality control requirements in § 60.131(h) to be clear with respect to preclosure considerations. The Commission also believes that uncertainty remains with respect to the applicability of the criticality control requirements to the postclosure period. The Commission intends to address the remaining uncertainty in a future rulemaking to make the NRC requirements consistent with the revised EPA standards that are currently under development, as mandated by the Energy Policy Act of 1992.

Section 60.132. Additional Design Criteria for Surface Facilities in the Geologic Repository Operations Area

Section 60.132(c)(1) requires that the surface facilities must be " * * * designed to control the release of radioactive materials in effluents during normal operations so as to meet the performance objectives of § 60.111(a)." The design should ordinarily be sufficient to provide reasonable assurance of meeting part 20 not only during normal operations, but even for events that are likely to occur moderately frequently or one or more times before permanent closure of the geologic repository (i.e., all Category 1 design basis events). Deleting the phrase "during normal operations," broadens the scope of this provision to reflect the Commission's intent more accurately.

The amendment of § 60.132 adopted in this final rule differs from the amendment of § 60.132 in the proposed rule in that the phrase "in effluents" in the proposed rule was changed to "in effluents during Category 1 design basis events" in the final rule. The rationale for this change was discussed in the "Response to Public Comments on the Proposed Rule."

Section 60.133. Additional Design Criteria for the Underground Facility

As in the case of the changes to 10 CFR 60.131, a reference to design basis events is substituted for the less precise "normal operations and * * * accident conditions."

Section 60.136. Preclosure Controlled Area

The final rule adopts the petitioner's concept of a preclosure control area under the name "preclosure controlled area." The term delimits an area over which the licensee exercises control of activities to meet regulatory requirements. Control would include the ability to exclude members of the public, if necessary. The zone, and

related dose limits, would also be used to analyze and identify structures, systems, and components that are important to safety under unusual conditions that have heretofore been characterized as Category 2 design basis events—credible, yet not likely to occur during the period of operations. The issue that is presented concerns the dose limits to ensure that the consequences of any events which occur present no unreasonable risk to the health and safety of the public. (Releases resulting from Category 1 design basis events would not be permitted to cause doses exceeding the limits of part 20.) The Commission adopts the basic provisions of part 72—namely, a 0.05 Sv (5 rem) dose limit, on or beyond the preclosure controlled area boundary—as modified to reflect the part 20 system of dose limits (see § 20.1201(a)). In addition to providing for separate dose limits for individual organs and tissue, the lens of the eye, and the skin, the use of "total effective dose equivalent" (TEDE) in part 20 explicitly accounts for exposures via the ingestion and inhalation dose pathways.

Modification of the 0.05 Sv (5 rem) dose limit, to reflect the part 20 system of dose limits, results in a family of dose limits: A TEDE of 0.05 Sv (5 rem); or the sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue (other than the lens of the eye) of 0.5 Sv (50 rem); an eye dose equivalent of 0.15 Sv (15 rem); and a shallow dose equivalent, to skin, of 0.5 Sv (50 rem).² The eye and skin dose limits are adequate to ensure that no observable effects (e.g., induction of cataracts in the lens of the eye) will occur as a result of any accidental radiation exposure. In implementing this provision, dose calculations should be made solely with reference to the consequence of the specific Category 2 design basis event, not cumulatively with other design basis events. To clarify this matter further, the analysis of a specific Category 2 design basis event would require an analysis which includes an initiating event (e.g., an earthquake) and the associated combinations of repository system or component failures that can potentially lead to exposure of the public to radiation. An example design basis event is a postulated earthquake (the initiating event) which results in: (1) The failure of a crane lifting a spent fuel waste package inside a waste handling building, (2) damage to the building ventilation filtration system, (3) the drop and breach of the

waste package, (4) damage to the spent fuel, (5) partitioning of a fraction of the radionuclide inventory to the building atmosphere, (6) release of some radioactive material through the damaged ventilation filtration system, and (7) public exposure to the released radioactive material. It should be noted that it is not necessary to assume multiple failures of safety-related systems unless these multiple failures are credible consequences of the initiating event. An analysis of a specific event for a real repository would be dependent on the particular features of the facility design and related operating procedures. In general, credit for the proper functioning of repository structures, systems, and components in an analysis would be commensurate with the merits of the design. In the example cited above, a waste package designated "important to safety" would not necessarily be assumed to breach in a drop event if the maximum hypothetical drop falls within the design parameters of the waste package to withstand such an event. Similarly, repository ventilation filtration systems would be analyzed for their capability to withstand natural phenomena (e.g., earthquakes) and detect, isolate, or filter radioactive material in ventilation flow.

The only other noteworthy deviation from part 72 is to refer in § 60.136 to doses attributable to any "Category 2 design basis event" whereas the corresponding section (i.e., 10 CFR 72.106) in part 72 refers to doses attributable to any "design basis accident." The term "design basis event" is used because it is a defined term in part 60. The change in terminology is not intended to be one of substance as Category 2 design basis events would generally be considered as accidents.

The 0.05 Sv (5 rem) dose limit is being adopted by the Commission as the appropriate design basis for protection of public health and safety from Category 2 design basis events at a GROA and will harmonize part 60 with part 72. In this regard, the Commission notes that part 72 applies to those facilities (MRS installations) most similar to the surface facilities of a repository and for which the kinds of design basis events are also expected to be similar. Further, the dose limit is consistent with dose values (0.06 Sv (6 rem) to the whole body) established as guidance for both fuel-handling accidents and spent-fuel cask-drop accidents at nuclear power plants.³

² Radiation exposure terminology is as used in part 20 (56 FR 23360; May 21, 1991).

³ NUREC-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," June 1987.

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Moreover, the dose limit is consistent with the accident-dose value (0.05 Sv (5 rem) effective dose equivalent) proposed by DOE in its PRM.

However, while consistency between the proposed 0.05 Sv (5 rem) dose limit for part 60 and other Commission rules or guidance documents is important, consistency alone does not necessarily ensure that there would be no unreasonable risk to the health and safety of the public associated with the proposed limit. As such, a perspective is provided on the risks associated with an operational repository and the appropriateness of the proposed 0.05 Sv (5 rem) dose limit as the design basis for protection of public health and safety from Category 2 design basis events.

Based on estimates provided by the National Council on Radiation Protection and Measurements⁴, the lifetime risk to individuals in the general population is 0.05 fatal cancers per Sv of exposure. Therefore, the lifetime risk of fatal cancer from an assumed 0.05 Sv (5 rem) exposure resulting from a postulated Category 2 design basis event is 0.0025 (i.e., 2.5×10^{-3}) per individual exposed. While this assessment provides perspective on the risk associated with a hypothetical exposure of a 0.05 Sv (5 rem) dose, it does not provide perspective on the estimated actual risk associated with the spectrum of possible Category 2 design basis events at a repository during its operational lifetime (estimated to be about 100 years).

Perspective on actual risk must include consideration of the frequencies (i.e., probabilities) of occurrence of these events, as well as their consequences, as "risk" is defined as "the probability of an event times its consequences." With respect to the range of probabilities of Category 2 design basis events, the upper bound is roughly 1×10^{-2} per year (i.e., events with probabilities of occurrence greater than 1×10^{-2} per year would generally be considered to be Category 1 events). Accordingly, assuming event consequences equivalent to the 0.05 Sv (5 rem) dose limit for part 60, the hypothetical upper bound on individual risk is 2.5×10^{-5} fatal cancers per year. To put this risk in perspective, the International Commission on Radiological Protection⁵ notes that, based on a review of information related

to risks regularly accepted in everyday life for stochastic phenomena, a fatal cancer risk in the range of 1×10^{-6} to 1×10^{-5} per year from exposure to radiation would likely be acceptable to individual members of the public. Thus, while the risk associated with the consequences of a repository event at the dose limit and upper bound probability of occurrence exceeds this range by a small factor, and is at a level that the Commission considers safe for occupational exposures, the Commission believes this result significantly overestimates the actual risk of an operating repository. Similarly, the Commission considers that the lower bound of Category 2 design basis events is on the order of 1×10^{-6} per year (i.e., events with probabilities of occurrence less than 1×10^{-6} per year would generally be screened from further consideration due to their negligible contribution to overall risk). In the proposed rule (March 22, 1995; 60 FR 15180), the Commission had considered a probability of occurrence of 1×10^{-9} per year as an appropriate lower bound. However, upon further analysis as discussed below, the Commission considers that a lower bound of 1×10^{-9} per year is too low and unjustified, and that a lower bound of 1×10^{-6} per year is appropriate. Screening out events with probabilities of less than 1×10^{-6} is expected to provide conservative estimates of risk. A higher screening criterion could probably be justified given the magnitude of the consequences and risks from this facility, but this criterion is not expected to cause an excessive analytical burden for demonstrating compliance with § 60.136, consistent with the Commission's guidance on the application of probability risk assessment methods in licensing. It is important to note that the arguments advanced for this screening criterion apply solely to the period of repository operations before permanent closure.

Assuming bounding repository event consequences of roughly 0.2 Sv (20 rem), a lifetime risk to individuals in the general population of 0.05 fatal cancers per Sv of exposure, and a lower bound of 1×10^{-6} per year for the probability of occurrence of Category 2 design basis events, the estimated risk of cancer fatality from these low probability events would be 1×10^{-8} per year. Events which result in risks at or below

this level do not contribute significantly to repository risk to an individual and, as such, can be neglected in the overall risk assessment.

Perspective on actual repository risk can be obtained by developing an understanding of the spectrum of potential Category 2 design basis events and estimating the consequences of these sequences, as well as their probabilities of occurrence. In this regard, the Commission recognizes that there is no high-level waste repository operating experience, and that only conceptual designs have been developed for these facilities.

Nonetheless, some perspective can be gained from the preliminary risk assessment by DOE⁶ of a conceptual design for a repository at Yucca Mountain, Nevada, as well as from consideration of risk assessments of selected U.S. nuclear power plants.⁷

Consistent with risk assessments for nuclear power plants, the spectrum of possible repository design basis events includes both internally and externally initiated events. Internally initiated events would include waste transporter collisions, crane failures or other types of fuel assembly, waste package or cask drop events, building or facility exhaust filter fires, and exhaust filter bypass or failure. Externally initiated events would include those resulting from earthquakes, tornados, and flooding. Regardless of the type or nature of the initiating event, the Commission believes that, for several reasons, both the variety of credible events and the resulting potential consequences to members of the public will be somewhat limited at repository facilities. First, in comparison with a nuclear power plant, an operating repository is a relatively simple facility in which the primary activities are waste receipt, handling, storage, and emplacement. A repository does not require the variety and complexity of active systems necessary to support an operating nuclear power plant. Further, the conditions are not present at a repository to generate a radioactive source term of a magnitude that, however unlikely, is potentially capable at a nuclear power plant (e.g., from a postulated loss of coolant event). As such, the estimated consequences resulting from limited source term generation at a repository would be correspondingly limited. This conclusion is consistent with the results

⁴National Council on Radiation Protection and Measurements, "Risk Estimates for Radiation Protection," NCRP Report No. 115, December 31, 1993.

⁵Recommendations of the International Commission on Radiological Protection. ICRP Publication 26, January 1977.

⁶U.S. Department of Energy, "Site Characterization Plan, Yucca Mountain Site, Nevada Research and Development Area, Nevada," DOE/RW-0199, December 1988.

⁷NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," December 1990.

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of the aforementioned preliminary risk assessment by DOE of a conceptual repository design at Yucca Mountain, Nevada. In that assessment, DOE considered 149 events for a variety of internally and externally initiated events. Of the 149 events, only 7 resulted in offsite doses in excess of 0.005 Sv (0.5 rem) to the critical organs of a maximally exposed individual and also had associated probabilities of occurrence greater than 1×10^{-9} per year. The highest estimated offsite dose from the DOE risk assessment was 0.021 Sv (2.1 rem) with an associated probability of occurrence of 5×10^{-7} per year.

The dose estimates of the DOE risk assessment are only reflective of a conceptual design for a repository at Yucca Mountain, Nevada. Nonetheless, the Commission believes they provide perspective on the magnitude of the estimated consequences to members of the public from postulated Category 2 design basis events, and that variations in repository design or site selection would not likely vary these estimates by more than an order of magnitude. The results of the DOE risk assessment also provide some perspective on the estimated probabilities of occurrence of the postulated repository design basis events and, as such, perspective on actual risk from an operating repository.

In general, the Commission would expect the potential higher consequence events to have correspondingly lower probabilities of occurrence. This expectation is consistent with the results of the DOE risk assessment as the estimated probabilities of occurrence for the seven events which resulted in offsite doses in excess of 0.005 Sv (0.5 rem) vary from 1×10^{-9} to 5×10^{-6} per year. The corollary to this is the expectation that higher frequency events would have correspondingly lower offsite consequences, and perspective on actual risk from an operating repository necessitates consideration of these events, as well as lower frequency events. Review of the DOE risk assessment indicates that some higher frequency, but lower consequence, events are just as important to actual risk as the lower frequency, but higher consequence, events. With respect to actual risk from the broad spectrum of all events considered in the DOE risk assessment, the estimated actual risk of an operating repository is roughly two to three orders of magnitude lower than the range of fatal cancer risks that would likely be acceptable to members of the public (i.e., a fatal cancer risk of 1×10^{-6} to 1×10^{-5} per year as noted in ICRP Publication 26).

With respect to the appropriateness of the proposed 0.05 Sv (5 rem) dose limit for Part 60 as the design basis for protection of public health and safety from Category 2 design basis events, the DOE risk assessment indicates the potential for events with offsite consequences on the order of several hundredths to several tenths of Sv (several rem to several tens of rem), depending on design and siting factors. The event consequences in this range, coupled with the estimated event probabilities of occurrence, result in estimated risks that would likely be acceptable to members of the public. However, given the lack of repository design, siting and operating experience and the supporting data base for probabilistic risk assessment, the Commission believes there is considerable uncertainty in the estimates of both the consequences and the probabilities of occurrence of postulated Category 2 design basis events. As such, the Commission believes that establishing a dose limit in Part 60 to the 0.05 Sv (5 rem) value would provide an adequate margin of safety and an appropriate design basis for protection of members of the public from unlikely, but credible events. Further, the Commission believes that a single dose limit is appropriate for the broad range of possible event frequencies, given the limited potential for offsite consequences at repository facilities.

Lastly, the amendments of § 60.136 adopted in this final rule differ slightly from the amendments of § 60.136 proposed in the proposed rule (60 FR 15180) in that the phrase "on or beyond the nearest boundary" in the proposed rule was changed to "on or beyond any point on the boundary" in the final rule and the phrase "may not exceed" in the proposed rule was changed to "shall not exceed" in the final rule. The rationale for the latter change is to improve clarity and the rationale for the former change was discussed earlier in the "Response to Public Comments on the Proposed Rule."

Section 60.183. Criminal Penalties

In the proposed rule, a conforming change was made to this section to include § 60.136 (pertaining to the preclosure controlled area) among the regulations that are not issued under sections 161b, 161i, or 161o of the Atomic Energy Act, for purposes of section 223 of the Act. On reconsideration, the Commission has decided not to revise this section (i.e., criminal penalties are authorized for violations of § 60.136).

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

Environmental Impact: Categorical Exclusion

The NRC has determined that this regulation is the type of action described in 10 CFR 51.22(c)(2), pertaining to the promulgation of technical requirements and criteria that the Commission will apply in approving or disapproving applications under part 60. Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, *et seq.*). Existing requirements were approved by OMB, approval number 3150-0127.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Dr. Richard A. Weller, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Division of Waste Management, Washington, DC 20555, Telephone (301) 415-7287.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The only entity subject to regulation under this rule is DOE.

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Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and, therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 60

Criminal penalties, High-level waste, Nuclear power plants and reactors, Nuclear materials, Reporting and record-keeping requirements, and Waste treatment and disposal.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the Nuclear Waste Policy Act of 1982, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to part 60.

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS — ENERGY

**PART
61**

**LICENSING REQUIREMENTS FOR LAND DISPOSAL
OF RADIOACTIVE WASTE**

STATEMENTS OF CONSIDERATION

52 FR 397
Published 1/6/87

10 CFR Part 61

**Technical Position Statement on
Licensing of Alternative Methods of
Disposal for Low-Level Radioactive
Waste**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Notice of Availability.

SUMMARY: This technical position statement identifies and describes specific alternative methods of disposal currently being considered as alternatives to shallow land burial, provides general guidance on these methods of disposal, and recommends procedures that will improve and simplify the licensing process. The statement provides answers to certain questions that have arisen regarding the applicability of 10 CFR Part 61 to near-surface disposal of waste, using methods that incorporate engineered barriers or structures, and other alternatives to conventional shallow land burial disposal practices. This position also identifies a recently published NRC contractor report that addresses the applicability of 10 CFR Part 61 to a range of generic disposal concepts and which provides technical guidance that the staff intends to use for these concepts.

As a result of comments received on the published draft of this position (51 FR 7806, March 6, 1986) as well as input at workshops and State meetings, the NRC has decided to focus on alternative methods that utilize engineering material with earthen cover (for example, below-ground vaults and earth-mounded concrete bunkers). Consequently, NRC will expend minimal resources on above ground vaults and mined cavities. This position statement combined with the above mentioned NRC contractor report fulfills the requirements of section 8(a) of Pub. L. 99-240, the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985.

ADDRESS: Copies of NUREG-1241 may be purchased by calling the U.S.

Government Printing Office on (202) 275-2060 or 2171 or by writing to the Superintendent of Documents, U.S. Government Printing Office, ATTN: Ann Butler, P.O. Box 37082, Washington, DC 20013-7082.

FOR FURTHER INFORMATION CONTACT:
Clayton L. Pittiglio, Jr., Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 427-4793.

Dated at Silver Spring, Maryland, this 4th day of December 1986.

For the Nuclear Regulatory Commission.
Malcolm R. Knapp,
Branch Chief, Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

52 FR 1292
Published 1/12/87
Effective 2/11/87

*Bankruptcy Filing; Notification
Requirements*

Part 30 Statements of Consideration

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of Information

See Part 2 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI and GPA

See Part 30 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

54 FR 22578
Published 5/25/89
Effective 6/26/89

10 CFR Part 61

RIN 3150-AB89

Disposal of Radioactive Wastes

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The NRC is amending its regulations to require disposal of greater-than-Class-C (GTCC) low-level radioactive wastes in a deep geologic repository unless disposal elsewhere has been approved by the Commission. The amendments are necessary to ensure that GTCC wastes are disposed of in a manner that would protect the public health and safety and therefore obviate the need for altering existing classifications of radioactive wastes as high-level or low-level.

EFFECTIVE DATE: The rule will become effective on June 28, 1989.

FOR FURTHER INFORMATION CONTACT:
W. Clark Prichard, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3884.

SUPPLEMENTARY INFORMATION:

Background

On May 18, 1988, the Nuclear Regulatory Commission published in the **Federal Register** (53 FR 17709) proposed amendments to Part 61 to require geologic repository disposal of greater-

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than-Class-C (GTCC) low level radioactive waste (LLW) unless an alternative means of disposal was approved by the Commission. The proposed amendments requiring geologic repository disposal, or an approved alternative, were aimed at insuring that GTCC waste would be disposed of in a manner consistent with the protection of public health and safety. This action was taken in lieu of a revision of the definition of high level radioactive waste (HLW). In proposing the amendments, the Commission outlined its rationale for not proceeding with a revision of the definition of HLW along the lines proposed in the advance notice of proposed rulemaking (ANPRM) published in February 27, 1987 (51 FR 5992).

It is the Commission's view that intermediate disposal facilities may never be available. In this event, a repository would be the only type of facility generally capable of providing safe disposal for GTCC wastes. At the same time, the Commission wishes to avoid foreclosing possible use of intermediate disposal facilities by the Department of Energy (DOE). If DOE chooses to develop one or more intermediate disposal facilities, the Commission anticipates that the acceptability of the facilities would be evaluated in the light of the particular circumstances, considering for example the existing performance objectives of 10 CFR Part 61 and any generally applicable environmental radiation protection standards that might have been established by the U.S. Environmental Protection Agency. Technical criteria to implement the performance objectives and environmental standards would be developed by the Commission after DOE had selected a specific disposal technology and decided to pursue development of an intermediate facility.

The Commission considers that the Part 61 amendments would obviate any need to reclassify certain GTCC wastes as HLW. Many comments on the ANPRM advocated classification of all GTCC wastes as HLW in order to ensure availability of a safe disposal "home" for those wastes. These amendments achieve the same purpose while leaving open the prospect that an intermediate disposal facility may prove attractive at some time in the future.

Office of Technology Assessment Report

Following publication of the proposed amendments, the Congressional Office of Technology Assessment published a report on management of GTCC LLW.¹ Its recommendations on disposal of

GTCC waste generally support the stance taken by the Commission in the proposed amendments.

The OTA report states that "If a decision about the disposal of GTCC wastes were required today, a conservative approach would be to permanently isolate the waste in a deep geologic repository, as has been proposed for commercial spent fuel and defense HLW."² The report goes on to acknowledge that further research and development could demonstrate the acceptability of intermediate disposal methods, such as deep-augured holes or an intermediate-depth repository.

The Commission emphasizes that these amendments preserve DOE's flexibility to pursue either one of these alternatives. The OTA report agrees with the Commission that the volume of GTCC waste is probably not great enough to justify a separate facility for this waste; costs of geologic repository disposal of GTCC waste would be comparable to, or lower than, developing a special disposal facility solely for GTCC waste.

The overall recommendations of the OTA report are that a Federal off-site interim storage facility for GTCC waste be established, as no permanent disposal facility could be available for at least 15 to 20 years. Until these interim storage facilities become operational, the Federal government could provide limited access to an existing DOE storage facility. Within the next year or so, DOE should begin to evaluate the impacts on repository operations and performance of emplacing GTCC waste in the repository. If DOE determines that such impacts are unacceptable, it could then begin to develop an alternative disposal facility.

Public Comments

The Commission received 35 comment letters in response to its request for public comment. Among the responses were comments from the Department of Energy (DOE), the Environmental Protection Agency (EPA), the States of Indiana, New York, Pennsylvania, South Carolina, Vermont, Michigan, Washington, Tennessee, and the Midwest Interstate Low Level Radioactive Waste Commission. Remaining comments came from industry, professional, and environmental groups, as well as private citizens. The following is a summary of major comments and Commission responses. A detailed analysis of public comments is available at the Commission's Public Document Room, 2120 L Street NW., Washington, DC.

(a) Restricting Alternatives

Many comments, including some by States and a regional state LLW compact, argued for restricting the alternatives to geologic repository disposal. These comments were

concerned that GTCC waste would be disposed of in State or State compact operated facilities. NRC was urged to "eliminate the option" of disposal in State or State compact facilities, by limiting alternative disposal methods to Federal facilities.

This concern must be examined in the light of the Low Level Radioactive Waste Policy Amendments Act of 1985, Pub. L. 99-240, 42 U.S.C. 2021b *et seq.* (LLWPAA) which clarified Federal and State responsibilities for radioactive waste disposal. States are responsible only for commercial LLW defined as "A", "B", or "C" waste by Part 61. All HLW, and all GTCC LLW is a Federal responsibility. The concerns expressed by commenters on this point have therefore been addressed, to a large extent, by legislation. No health and safety concerns have been presented that would persuade the Commission to require the use of Federal facilities, to the exclusion of other facilities licensed under the Atomic Energy Act, for the disposal of all GTCC. Indeed, the LLWPAA appears to recognize the continued authority of a State, subject to the provisions of its compact, or a compact region, to accept GTCC waste for disposal, and in the absence of some compelling reason the Commission's judgment is that this option should be preserved.

(b) Applicability of Standards

Both EPA and DOE, among other commenters, were concerned about one aspect of possible geologic repository disposal of GTCC waste. Should GTCC LLW be emplaced in a repository along with HLW, these two categories of waste would be subject to different standards—EPA's HLW standard, and EPA's LLW standard. In addition, they questioned whether NRC's 10 CFR Part 60, or 10 CFR Part 61 would apply to GTCC waste in a repository. Commenters cited the potential for confusion in having dual standards apply to waste in the same repository.

The Commission notes that its regulations were developed for specific types of disposal facilities. Thus, Part 60 applies to any geologic repository for HLW, regardless of what other types of radioactive wastes may be disposed of there. Similarly, Part 61 pertains to land disposal facilities other than repositories. Therefore, only Part 60, and not Part 61, would be relevant for disposal of GTCC wastes in a HLW repository.

If GTCC wastes were to be disposed of in a deep geologic repository, questions might be raised regarding the applicability to those wastes of the waste form and packaging requirements of Part 60. As Part 60 is now structured, the retrievability requirement of § 60.111 and the implicit requirement for packaging to permit safe handling and emplacement apply to all wastes,

¹ U.S. Congress, Office of Technology Assessment, *An Evaluation of Options for Managing Greater than Class C Low Level Radioactive Waste*, OTA-BP-0-50, October, 1988.

² *ibid.* pp. 2-3.

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including GTCC wastes, that are disposed of in a repository.

Applicability of the waste package containment requirement (300–1,000 years) is specifically limited to packages containing HLW or spent nuclear fuel. Because GTCC wastes would not be classified as HLW under these amendments, the waste package requirements of Part 60 would not pertain to GTCC wastes. The performance objectives for the engineered barrier system (release rate of 1 part per 100,000 per year) and for overall system performance are stated so as to be applicable to all wastes emplaced in a repository. The degree to which these performance objectives would affect GTCC waste form and packaging would depend on the specific radionuclides present in the GTCC wastes and on the physical and chemical forms of those wastes.

For all wastes disposed of in a repository, Part 60 now requires:

(1) waste disposal operations shall be conducted in compliance with the radiation protection requirements of Part 20 of the NRC's regulations (§ 60.111(a)),

(2) the option of waste retrieval shall be maintained for a period up to 50 years after the start of waste emplacement operations (§ 60.111(b)), and

(3) " * * * any release of radionuclides from the engineered barrier system shall be a gradual process which results in small fractional releases to the geologic setting over long times * * * The release rate of any radionuclide from the engineered barrier system following the containment period shall not exceed one part in 100,000 per year of the inventory of that radionuclide calculated to be present at 1,000 years following permanent closure * * * " (§ 60.113).

Also implicit in Part 60 is a requirement that any GTCC wastes disposed of in a repository not prevent HLW or spent fuel from meeting the specific performance objectives for those types of wastes.

These general objectives can be achieved in various ways for different wastes. For example, containment within a durable waste canister might be appropriate for short-lived wastes (half-lives about 30 years or less), while processing of wastes to reduce leachability or use of retardant backfill materials might be more appropriate for longer-lived wastes. The NRC is initiating an effort, as contemplated by § 60.135(d) of Part 60, to specify in more detail the waste form and packaging criteria appropriate for specific types of GTCC wastes. The Commission anticipates that DOE will develop specific waste form and packaging alternatives for consideration by the NRC in that rulemaking, and the

Commission would welcome similar suggestions from other interested parties.

Previous development of EPA's standards has addressed types of wastes rather than types of disposal facilities as in NRC's regulations. Thus, it is possible that a repository containing both HLW and GTCC LLW would be subject to two EPA standards. The NRC does not anticipate that this will cause significant problems for DOE, since the LLW standard has not yet been proposed and this situation can be taken into account as the standard is developed.

(c) Effects on Repository Program

There were a number of comments, including those of DOE, that expressed concern over the possible impacts on the geologic repository program of emplacement of GTCC waste along with HLW in the repository. Specific concerns were over the potential for additional costs, GTCC waste taking up valuable repository space, and the burden for DOE of having to include GTCC waste in its performance assessment of the repository.

In the Commission's view, these concerns do not warrant changes from the proposed amendments. First, the proposed amendments allow for a range of GTCC disposal methods to be used by DOE. Under present regulations on land disposal of LLW (10 CFR Part 61), GTCC waste is specifically identified as "not generally acceptable" for near-surface disposal. Disposal methods for GTCC waste must generally be "more stringent" than near-surface disposal. The proposed amendments to Part 61 specified that one "more stringent" method would be geologic repository disposal. Other methods are not specified but are also left open to DOE, subject to Commission approval. The proposed amendments were not what prevented DOE from routinely using near-surface disposal; that is already prohibited by 10 CFR Part 61. Thus, relevant cost impacts of the amendments do not involve a comparison between costs of geologic repository disposal versus costs of near-surface disposal. Cost comparisons involve geologic repository disposal versus other unspecified Commission-approved "intermediate" methods. However, the proposed amendments did not require one method to be selected over another; either option is permitted. DOE would presumably weigh cost comparisons along with other factors in selecting which disposal method to use.

Even if geologic repository disposal were selected, this type of disposal should not cause an increase in the present HLW fee charged nuclear utilities—a specific concern raised on behalf of industry. Rather, as suggested

by DOE's study of the matter pursuant to section 3(b)(3) of the LLWPA, it is likely that a separate fund, similar to the HLW Nuclear Waste Fund, would be established to provide for payment of disposal costs by the generators of GTCC wastes, either as an advance fee or as a charge upon waste receipt (*Recommendations for Management of Greater-than-Class C Low Level Radioactive Waste*, U.S. Department of Energy, DOE/NE-0077, 1987). The Commission anticipates that new legislation would be enacted if required so that the current situation does not represent a major impediment to disposal of GTCC wastes.

The fact that the expected volume of GTCC waste is very low was an important factor in the Commission's decision to propose the Part 61 amendments. Current evidence shows that the expected volume of GTCC waste is very small relative to volumes of HLW and Class A, B, and C LLW. It is projected that 2,000–4,800 cubic meters of commercially-generated GTCC waste will need disposal through the year 2020³. This amount of waste is smaller than the anticipated excavated volume of a single emplacement room of a repository, and would not present a significant burden on the capacity of the repository to receive HLW. It would not be a significant factor underlying the need for a second repository.

Regarding DOE's assessment of the performance of the repository, if DOE found that it did pose a major obstacle, these amendments would permit DOE to choose an acceptable alternative disposal method.

(d) Relationship to Defense Wastes

Some comments were concerned with any effects this rulemaking would have on defense wastes.

The proposed amendments apply solely to commercial GTCC LLW, and have no bearing on facilities for defense LLW. NRC has licensing authority only over commercially generated LLW; it has no licensing authority over defense LLW, including defense LLW that might be analogous to GTCC waste. Because Part 61, by its terms, would only apply to DOE activities subject to NRC jurisdiction, and NRC jurisdiction is lacking for defense LLW facilities, these efforts would have no effect on defense LLW disposal.

In the case of facilities authorized for the disposal of HLW, the Commission does have jurisdiction and the Commission's regulations would continue to apply. Accordingly, to the extent that DOE disposes of HLW in facilities other than geologic

³ U.S. Department of Energy estimates.

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repositories, a license under Part 61 would be required as before. DOE would not necessarily be precluded from proceeding with such disposal, but as has always been the case DOE would need to obtain the Commission's approval. The NRC staff has been working with DOE to develop appropriate classifications for defense reprocessing wastes under existing laws and regulations. These efforts have led to agreement that certain decontaminated salts at Savannah River and West Valley, generated incidentally in the course of processing, should not be classified as HLW. Additional efforts are now underway to review materials to be produced at Hanford in projected operations, to determine whether the disposal thereof is subject to Commission licensing.

(e) Restricting DOE Options for GTCC Management

DOE argued that the proposed amendments would limit its statutory authority, under the LLWPAA, to develop a comprehensive policy for management of GTCC waste.

The Commission considered the proposed rule to be entirely consistent with the "comprehensive scheme for developing a policy for disposal of GTCC wastes" referred to in this comment. The proposed rule did not constrain DOE's ability to "identify disposal options, financing mechanisms, and the legislation needed to implement them." Nor did the proposed rule require disposal of GTCC wastes prior to submittal of DOE's recommendations to Congress. The proposed rule only recognized that GTCC wastes must be disposed of in a facility licensed by the NRC—a constraint imposed by the LLWPAA.

In DOE's 1987 report to Congress regarding management of GTCC wastes (DOE/NE-0077), DOE stated that certain regulatory actions were needed before DOE could proceed with identification of disposal options and costs. One of these actions was a decision by NRC whether or not to proceed with development of a concentration based definition of high-level waste. The Commission has decided not to develop such a definition for the reasons previously discussed. Thus, one of the regulatory impediments previously identified by DOE will be removed by this rulemaking.

(f) Reference to Analyses of Kocher and Croff

In the proposed rule, the Commission cited a technical report which had recently been published (Kocher, D.C. and A.G. Croff, *A Proposed*

Classification System for High-Level and Other Radioactive Wastes, ORNL/TM-10289, Oak Ridge National Laboratory, 1987). The Commission cited this report to support its view that evaluations of the waste isolation capabilities of "intermediate" disposal facilities would be so speculative and site-specific that such analyses would not provide a technically defensible basis for classifying wastes as HLW or non-HLW. The Commission further stated that it could not accept an alternative classification approach presented in that report because that approach was based solely on the short-term storage and handling risks associated with the heat and external radiation levels generated by a waste rather than on the degree of waste isolation required following disposal. The authors of the cited report (Kocher and Croff) commented on the proposed rule alleging that the Commission had misrepresented the content and conclusions of their report.

As discussed in the detailed analysis of public comments, the Commission acknowledges that its statements could have been misunderstood. The Commission's purpose in referring to Kocher and Croff's report was solely to support its view that the proposal presented in the ANPRM, i.e., classification of wastes based on analyses of the projected performance of "intermediate" disposal facilities, should not be pursued because of the limited development of these facilities and because their performance is likely to be highly site-specific. The Commission continues to believe that Kocher and Croff's report supports this view. Other references to Kocher and Croff's work are withdrawn.

(g) Licensing Under Part 61

Concerning alternatives to geologic repository disposal, some comments argued that the licensing of any alternative disposal method should not necessarily be under the framework of Part 61, as was proposed in § 61.55. This would be too restrictive in their view.

The Commission's regulations for licensing of radioactive waste disposal consist solely of 10 CFR Part 60, which applies to disposal in a geologic repository, and 10 CFR Part 61, which applies to land disposal other than in a geologic repository. A wide variety of disposal methods, including all of those currently proposed as "intermediate" disposal methods, could be licensed under Part 61. Thus, the Commission does not believe that § 61.55 places any unnecessary restrictions on DOE.

On the contrary, as provided in § 61.1, Part 61 establishes procedures, criteria,

and terms and conditions with respect to "land disposal of radioactive waste". In implementing this objective, § 61.3 requires that the disposal of low-level waste at any "land disposal facility" must be authorized under Part 61. Section 61.7 notes that additional technical criteria might be needed for licensing of disposal facilities other than "near-surface" disposal. If needed, such criteria would be added to Part 61 before licensing an "intermediate" disposal facility. Because "land disposal facility" is defined broadly (so as to include any facility other than a geologic repository), the reference to licensing under Part 61 is proper and in conformance with the existing regulatory structure.

(h) Mixed GTCC Waste

EPA raised the possibility that some GTCC wastes would also contain hazardous materials subject to RCRA (Resource Conservation and Recovery Act) regulations. The Commission acknowledges this possibility as well as the importance of steps to insure that "mixed" GTCC wastes are managed appropriately. DOE will need to consider applicable RCRA requirements as well as those arising under the Atomic Energy Act. Should RCRA requirements associated with GTCC waste represent a significant impediment to placing a geologic repository in service, DOE will still have the option to propose the use of a separate facility.

(i) Limiting State Responsibility

A number of comments wanted the Commission to promulgate regulations making all radioactive waste which is hazardous for over 100 years a Federal responsibility. Congress clarified Federal/State responsibilities for radioactive waste in the LLWPAA. States are responsible for all commercially-generated Class A, B, and C LLW. The Federal government is responsible for the disposal of HLW and defense LLW. In view of this statutory framework, which the Commission considers to be compatible with protection of public health and safety, there would be no basis for any Commission action at this time.

Changes From the Proposed Rule

Only one change from the proposed rule has been made in these final amendments. Proposed § 61.55(a)(2)(iv) required geologic repository disposal of GTCC waste "unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are submitted to the Commission for

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approval." A comment pointed out that the mere submittal of proposals was quite different than approval of proposals by the Commission. The Commission agrees that its intent is better expressed by requiring proposals to be approved. Accordingly, the wording in this section has been changed to read "proposals * * * approved by the Commission."

Final Rule

Following its review and analysis of the public comments, the Commission believes that the course of action it had proposed—requiring geologic repository disposal of GTCC waste, or approved alternative—should be adopted. Therefore, these final amendments to Part 61 deviate little from those proposed. By these amendments, the Commission is providing DOE with the regulatory framework DOE needs to proceed with plans for management of GTCC waste. The rule identifies one approved method of disposal for GTCC waste, but allows DOE to plan and develop an alternative method if DOE so desires, subject to Commission approval. It is now up to DOE to evaluate its options for GTCC waste disposal, and to proceed with GTCC disposal.

In line with the foregoing discussion, therefore, the Commission is promulgating two changes to its existing rules. First, by amending 10 CFR 61.55, it would henceforth require all greater-than-Class-C waste to be disposed of in a geologic repository unless an alternative proposal is approved by the Commission. Second, the jurisdictional reach of 10 CFR Part 61 would be extended to cover all activities of the Department of Energy that may be subject to the licensing and regulatory authority of the Commission. This is intended to reflect the policy of the Low-Level Radioactive Waste Policy Amendments Act, which provides that all commercially-generated waste with concentrations exceeding Class C limits shall be disposed of in a facility licensed by the Commission that the Commission determines is adequate to protect the public health and safety. This change would take the form of eliminating the more restrictive language regarding the Department of Energy that appears in § 61.2.

Environmental Impact: Categorical Exclusion

The amendments to Part 61 contained herein are corrective or of a minor nature and do not substantially modify existing regulations. Accordingly, under 10 CFR 51.22(a) and 51.22(c)(2), they are eligible for categorical exclusion from

the preparation of an environmental assessment.

The first change, pertaining to the definition of "person," is corrective in that it merely reflects the broader jurisdiction of the Commission under the Low-Level Radioactive Waste Policy Amendments Act. The modification is not substantial.

The second change, pertaining to the disposal of greater-than-Class-C radioactive wastes in a geologic repository, is minor. The existing regulations in 10 CFR Part 61 already preclude disposal of GTCC in a Part 61 licensed disposal facility without further review and approval. This amendment does no more than state the Commission's conclusion that, in the absence of such an approved alternative, a geologic repository is the only currently authorized facility acceptable for GTCC disposal without further review by the Commission. It is thus a minor change to specify that the "more stringent" methods are to include disposal in a repository, where it is also expressly provided that, as before, proposals for other methods of disposal may still be submitted to the Commission for approval. No substantial modification of existing regulations is involved.

Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0135.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW., Washington, DC. Single copies of the analysis may be obtained from W. Clark Prichard, Division of Engineering, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3884.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), and NRC Size Standards (December 9, 1985, 50 FR 50241), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The only entity subject to regulation under this rule would be the U.S. Department

of Energy, which does not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act. All waste generators, some of which might be classified as small entities, must pay the costs associated with management and disposal of the wastes they generate. This rule would not affect those costs since it preserves all options currently available for waste disposal. Only DOE's selection of a specific disposal technology from the full range of alternatives available would potentially have an economic impact on small entities.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 61

Low-level waste, Nuclear materials, Penalty, Radioactive waste, Reporting and recordkeeping requirements, Waste classification, Waste treatment and disposal.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 61.

55 FR 10397
Published 3/21/90.
Effective 4/20/90

*Preserving the Free Flow of
Information to the Commission*

See Part 30 Statements of Consideration

56 FR 23360
Published 5/21/91
Effective 6/20/91

*Standards for Protection Against
Radiation*

See Part 20 Statements of Consideration

56 FR 40664
Published 8/15/91
Effective 9/16/91

*Revisions to Procedures to Issue
Orders; Deliberate Misconduct by
Unlicensed Persons*

See Part 2 Statements of
Consideration

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56 FR 61352
Published 12/3/91
Effective 6/20/91

*Standards for Protection Against
Radiation; Correction*

See Part 20 Statements of
Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

requirements for low-level radioactive waste (LLW) disposal facilities. These amendments clarify that these regulations also apply to the licensing of above-ground disposal facilities; replace the phrase "quality control program" in these regulations with the phrase "quality assurance program," tailored to LLW disposal; update the Paperwork Reduction Act Statement in the regulations, and identify the correct NRC recipient of copies of the licensee's annual reports. The changes are intended to simplify LLW disposal facility licensing interactions for NRC, the NRC Agreement States, and potential applicants for LLW disposal licenses.

EFFECTIVE DATE: July 22, 1993.

ADDRESSES: Copies of the regulatory analysis, the environmental assessment and finding of no significant impact, and the comments received on the rule may be examined at the NRC Public Document Room at 2120 L Street NW, (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Mel Silberberg, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 492-3810.

SUPPLEMENTARY INFORMATION:

Background

The NRC published a proposed rule in the *Federal Register* on March 8, 1992, (57 FR 8093-8096) that proposed to make four specific changes to 10 CFR part 61 (hereafter referred to as "part 61" or "the regulation"). Part 61 sets out licensing requirements, licensing procedures, and performance objectives for the land disposal of LLW wastes. A review of part 61 against the backdrop of current State and Compact efforts to site and develop LLW disposal facilities identified the need to modify the regulations as follows: (1) Clarify that 10 CFR part 61 also applies to above-ground disposal facilities; (2) replace the phrase "quality control program" in § 61.12(j) with the phrase "quality assurance program," tailored to LLW disposal; (3) update the Paperwork Reduction Act Statement in § 61.8; and (4) identify the correct NRC recipient of copies of the licensee's annual reports. A 30-day comment period expired on April 6, 1992. Comments were received from six respondents.

Summary and Analysis of Public Comments

Two of the letters came from States, one from a citizens group, one from an environmental consulting company, one from a LLW facility developer, and one from a private citizen. Three of the

respondents provided no actual comments but only wrote to indicate their support for the proposed rulemaking. Two of the actual commenters, the State of Illinois and the consulting company, objected to certain provisions of the proposed rule and provided comments on those provisions. The objections raised by these two commenters focused on the change which clarifies that part 61 also applies to above-ground LLW disposal facilities. The developer commented on a part of the rule that was not being revised. One of the commenters raised a concern about shallow land burial that was not germane to this rulemaking.

Issue: Abandonment of the Systems Approach

The State of Illinois and the consulting company expressed concern that the proposed amendments to clarify the applicability of part 61 to above-ground disposal amounted to more than simple clarification. These two commenters took the view that the proposed amendments constituted a significant change in, or even abandonment of, the regulatory concept that was the foundation of part 61 and referred to as the "systems approach." The consulting company stated that two of the basic concepts of the systems approach in part 61 were that "the site should make a significant contribution to the long-term isolation of the wastes," and "as reliance on the long-term performance of engineered features decreases over time, reliance on the site must increase over time in order to compensate." The same commenter stated that the site would play a significantly less important role in assuring the long-term isolation of the waste for above-ground disposal facilities without soil covers than it would for disposal facilities built into the ground with soil covers. The commenter stated that there would have to be overwhelming reliance on the above-ground engineered structures not only to contain the wastes over the short term, but to provide long-term isolation as well. The commenters argued that this situation is an abandonment by NRC of the system approach to LLW disposal.

Response

The systems approach to safe disposal of LLW was and still is the foundation of licensing under part 61. The NRC is not abandoning that regulatory concept in the process of clarifying that part 61 can be used to license above-ground disposal facilities. In pursuing the concept of the systems approach during the development of part 61, NRC

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10 CFR Part 61

RIN 3150 - AE00

**Licensing Requirements for Land
Disposal of Radioactive Wastes**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory
Commission (NRC) is amending its
regulations containing licensing

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assumed that for LLW disposal facilities to meet the performance objectives in subpart C, there would have to be an integrated performance of all of the disposal system components (i.e. the site, the waste form, the engineering or facility design, the operation, and the closure of the facility). Each component of the disposal system would make some particular contribution to the containment or isolation of the waste, albeit dependent upon the particular design. As an integrated system the components would work with each other to protect the public health and safety. This assumption applies to any LLW disposal facility, whether it is in the ground or above-ground. As noted in the Statement of Considerations for the proposed rule, technical criteria, analogous to those presently in 10 CFR part 61 but specific to above-ground disposal, do not exist. Nor is the NRC providing either technical criteria or guidance for above-ground disposal designs in this rulemaking. It is expected that should NRC receive an application for above-ground disposal, criteria will be developed on a case-by-case basis.

In any case, whether an LLW facility is in the ground or above ground, it will have to meet the part 61 performance objectives to be licensed for LLW disposal, and performance assessments will evaluate the interactions of the site, design, etc., to determine if they will result in a safe facility.

Issue: NRC Promotion of an Unproven and Questionably Safe Disposal Technology

The public health and safety implications of the proposed action were also a major concern to the consulting company. That commenter objected to the proposed rule on the grounds that the NRC could not ensure that the public health and safety would be protected because the Agency had not evaluated the safety of an above-ground disposal facility over the 500 years during which there would be a radiological hazard at such a facility. The commenter also asserted that the NRC had not demonstrated through the proposed rule that an overall disposal system of such a design could, with reasonable assurance, meet the performance objectives of subpart C, as such a facility would be required to do before an LLW license could be granted. In addition, the commenter stated that above-ground disposal technology was not specifically evaluated in the Environmental Impact Statement (EIS) for the existing part 61 and noted that no additional assessment was offered as part of the proposed rulemaking. From

this commenter's perspective, by proposing the changes to authorize the use of above-ground disposal, NRC is promoting an unproven and questionably safe disposal technology.

Response

The structure of part 61 is that all land disposal facilities must meet the performance objectives of subpart C. The subpart C performance objectives are the safety objectives, intended to protect the general population from releases of radioactivity, to protect individuals from inadvertent intrusion, and to protect individuals during facility operations. The license application for any LLW land disposal facility must demonstrate compliance with these objectives. If NRC received a license application for an aboveground facility, NRC would perform a safety evaluation as a necessary part of the licensing process to determine if the required performance objectives would be fulfilled. NRC's analysis and evaluation for such a facility would be based on site-specific information and data obtained during the licensing process to assess compliance with the performance objectives. Additionally, in accordance with 10 CFR 51.80(a), the NRC will prepare an EIS for the facility as it is required to do for any LLW disposal facility license issued under 10 CFR part 61.

Issue: Lack of Technical Requirements for Above-Ground Disposal—More Complicated Licensing Process

The two commenters who objected to the proposed rule also objected because it did not contain technical requirements for above-ground disposal. Part 61 contains detailed technical requirements specifically for near-surface disposal facilities but no equivalent technical requirements for above-ground facilities are present in the existing part 61, nor were any proposed through the rulemaking. The commenters maintain that it is not desirable to promulgate a rule extending the applicability of Part 61 to above-ground disposal facilities without appropriate technical guidance.

The consulting company also objected to the proposed rule because the commenter believes that NRC's intentions to develop technical requirements after an application is received would increase uncertainty and complicate, rather than simplify, the licensing process. The commenter stated that developing the requirements at the same time a license application is under review would expose the license review to undesired debate about the adequacy of the regulations and the

manner in which they were developed. The commenter argued that NRC should develop the technical requirements for above-ground disposal now, as part of this rulemaking.

Response

The NRC continues to support its earlier decision not to issue technical criteria for above-ground disposal with this rulemaking. While some States have considered above-ground disposal, no State has actually decided to build such a facility. Thus, NRC may not even receive an application to license an above-ground facility. Therefore, NRC believes that it is a more efficient use of NRC resources to develop technical criteria when there are actual plans for an above-ground facility rather than speculate at this time as to how such a facility might be designed.

Although the decision to defer development of the technical criteria for an above-ground disposal facility will introduce some uncertainty into the licensing process, the Commission does not believe that this deferral will substantially interfere with the development of a license application for such a facility or the NRC review of such a license application. As noted previously, the performance objectives of subpart C must still be met, and furthermore, the near-surface disposal requirements currently in § 61.50, § 61.51, and § 61.52 may be useful to a potential license applicant in preparing a license application for an above-ground disposal facility.

Issue: Increased Regulatory Uncertainty for Above-Ground Disposal

The consulting company expressed concern that if an Agreement State receives an application for above-ground disposal and NRC has not developed technical requirements, the Agreement State will have to develop its own technical requirements which could be different from those developed by another Agreement State or by the NRC. The commenter's view is that the differences in requirements could raise issues that would ultimately have to be resolved by NRC or by the courts.

Response

NRC recognizes that different States and the NRC might utilize different technical criteria appropriate to the particular design proposed to them. The NRC will provide assistance to the extent practical to facilitate States' efforts in developing and utilizing criteria. In any case, as noted previously by the Commission, the performance objectives of subpart C must still be met. Any differences in technical approaches

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should not give rise to proceedings before NRC or the Courts.

Issue: LLW Licensing on an Ad Hoc Basis

According to one of the commenters, the proposed changes which include facility review and criteria development on a case-by-case basis, raise the specter of above-ground disposal facilities that are designed, licensed, constructed, operated, and closed, on an ad hoc basis. The commenter believes such licensing would be a retreat to the method of licensing used before the promulgation of part 61.

Response

The NRC does not believe that the term "ad hoc" accurately describes the licensing decisions it will make on above-ground disposal. NRC has dealt with and will continue to deal with many specific licensing issues on a case-by-case basis. However, since the promulgation of part 61, the licensing process for LLW disposal is directed at attaining reasonable assurance that the licensed facility will meet the performance objectives of subpart C. Granted there will likely be new and different issues associated with licensing an above-ground facility, but NRC will deal with these issues as it has in the past, making sure that adequate conservatism has been incorporated in the design or the siting of the facility to ensure the public safety.

Issue: Not Disposal but Long-Term Storage

One of the commenters objected to the concept of above-ground disposal as nothing more than a 500-year hold-for-decay, storage facility. The commenter notes that long-term storage of LLW is inconsistent with Commission policy. The commenter urged NRC to make a clear case that an above-ground disposal facility without an earthen cover is substantially different from a 500-year storage facility.

Response

The NRC would not treat an above-ground disposal facility as a storage facility. A performance assessment would need to demonstrate long-term performance and stability as required by part 61. The facility would be licensed as a permanent disposal facility and would be evaluated for compliance with the Performance Objectives in subpart C.

Issue: Lack of Public Role in the Regulatory Process

Another issue raised was that the approach NRC intends to use to license

above-ground disposal will not ensure adequate opportunity for public involvement in the regulatory process. The commenter noted that in the proposed rule NRC specified its intent to develop technical requirements for above-ground disposal facilities after an application is received and on a case-by-case basis. The commenter assumed that such an approach would not afford the public the opportunity to be actively involved in the development and review of such requirements.

Response

There has been opportunity for public participation in the establishment of the performance objectives in subpart C, which were established by rulemaking. In addition, there will be opportunity for the public to be involved in the regulatory process related to licensing an above-ground disposal facility. As discussed previously, the technical review criteria for an above-ground disposal facility will be developed on a case specific basis after a license application is received for such a facility. On a case specific basis the Commission will determine what mechanism to use to establish the technical requirements for the facility license and the method for involving the public in the development of such requirements. In similar situations where the technical criteria for licensing has not been established by rule, the Commission has provided an opportunity for parties to the hearing on the license application for the facility, the opportunity to comment on the licensing criteria. This occurred in the Envirocare license application for a specialized high-volume, low-activity thorium and uranium waste disposal facility (56 FR 2959) 1991 and in the Louisiana Energy Services license application for the design, construction, and operations of unique uranium enrichment facilities. (56 FR 23310) 1991.

Participation by a member of the public in the licensing process is described in NUREG-1274 including procedures for compliance with 10 CFR part 2, NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders." Federal Register Notices (FRN) are published when an application is tendered, when an application is determined to be acceptable for docketing, when the Draft Safety Evaluation Report (DSER) and Draft Environmental Impact Statement (EIS) are completed, and when public hearings are scheduled. NRC will also publish a Notice of Intent to issue a license and a Notice of Issuance. The public, States, tribes, and local

governments can petition to participate in the licensing process and can request hearings to provide further involvement.

Issue: Shallow Land Burial Facilities Could be Considered Geologic Repositories

The developer commented that the second sentence of the definition "land disposal facility" which reads, "For purposes of this chapter, a geologic repository as defined in part 60 is not considered a land disposal facility" might be construed to preclude shallow land burial as a permissible method for LLW disposal. The commenter noted that while the exclusion of geologic repositories is supposed to decouple LLW facilities from deep geologic facilities for high-level waste (HLW) disposal, the definition of geologic repository in part 60 (NRC's HLW disposal regulations) is very general, and that a "shallow land burial facility" for LLW could be considered a geologic repository under the part 60 definition.

Response

NRC staff believes that this comment reflects a misunderstanding regarding NRC's proposed changes to the definition of "land disposal facility," and it addresses an issue which is outside of the intended scope of the rulemaking. From the developer's comments, it could be that the developer incorrectly believed that the second sentence of the definition was being added, or at least changed, as part of NRC's proposed revision to part 61. However, neither was the case. The language identified in this comment is already part of the definition of "land disposal facility" in part 61 and has been since the original rule was promulgated in 1982. For purposes of presenting the entire definition as it would appear when the revisions were promulgated, the NRC staff included the second sentence in what was referred to as the proposed definition for "land disposal facility" for the proposed rulemaking. Even though NRC was not proposing to add or change that sentence, NRC staff considered the developer's comment to determine if the wording of the second sentence could be used to exclude typical shallow land burial as an acceptable design for disposal of LLW.

The staff does not believe that there should be any difficulty in differentiating between a geologic repository that is licensed under the requirements of part 60 for disposal of HLW and a land disposal facility licensed under the requirements of part 61 for disposal of LLW. The definition of a geologic repository must be read

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within the context of the purpose and scope of 10 CFR 60.1. This section applies to a geologic repository that is only licensed to the U.S. Department of Energy (DOE) in accordance with the Nuclear Waste Policy Act of 1982. Moreover, § 60.1 specifically states that part 60 "does not apply to any activity licensed under another part of this chapter." Therefore, a shallow land burial facility licensed under part 61 would not come within the scope of § 60.1, but instead would fit within the scope of part 61. The staff concludes that no change is required to the second sentence in the definition for "land disposal facility" in part 61 to address the developer's comment.

Based on the analysis of public comments and further staff review, the staff has prepared this final rule. As described below, there are some editorial differences between the proposed definition for "land disposal facility" and the definition to be promulgated in the final rule.

Discussion of the Revisions

I. Amend the definition of "land disposal facility" in § 61.2 to clarify that the term refers to LLW disposal facilities which are on or protrude through the earth's surface and do not have an earthen cover, in addition to those that are in the ground and have an earthen cover. The purpose of this change is to clarify the regulatory applicability of part 61 to the licensing of "above-ground" disposal designs like the "above-ground vault," in particular, and the applicability of the performance objectives of part 61 to these designs.

The definition of "land disposal facility" offered in the proposed rule read "land disposal facility" means the land, buildings, and equipment which are intended to be used for the disposal of radioactive wastes on the surface or into the subsurface of the land. For purposes of this Chapter, a 'geologic repository' as defined in part 60 is not considered a 'land disposal facility'."

For the final rule, the wording of the definition of "land disposal facility" has been modified slightly from the language of the proposed definition in order to better clarify that part 61 can be used by NRC to license above-ground LLW disposal facilities. The final definition of land disposal reads "land disposal facility means the land, buildings and structures, and equipment which are intended to be used for the disposal of radioactive wastes. For purposes of this Chapter, a "geologic repository" as defined in part 60 is not considered a "land disposal facility." In the final definition, the words "on the surface or into the subsurface of the

land" have been deleted to eliminate confusion regarding the kinds of facilities to which these terms apply. The word "structures" has been added since that term better describes the types of engineered features likely to be constructed at an above-ground LLW disposal facility. The Commission believes the final definition is not a substantive change but a modification to simplify the definition so that it is easier to understand.

At this time, the NRC is not issuing specific technical criteria for above-ground disposal facilities that are analogous to the near-surface disposal requirements of §§ 61.50(a), 61.51(a), and 61.52(a) of subpart D because of the special technical characteristics of above-ground disposal facilities. Only those portions of the regulation that apply generically to "land disposal facilities" are directly applicable to the licensing of above-ground disposal facilities. Specifically, this means that the overall performance objectives of subpart C will apply to above-ground disposal facilities, as well as the part 61 administrative and procedural requirements, the environmental monitoring requirements, the financial assurance requirements, the waste transfer and manifest requirements, and the general institutional requirements.

Establishing the applicability of the subpart C performance objectives to above-ground disposal is particularly important. Any applicant for a license for an above-ground disposal facility under part 61 will have to demonstrate to the NRC that the proposed facility can meet the same safety requirements and dose limits that apply to any LLW disposal facility that has an earthen cover. The demonstration of compliance will have to address the unique features of the above-ground design, the special technical considerations associated with those features, their potential health and safety consequences, and reconcile them with the subpart C performance objectives.

Even though some of the requirements in subpart D are only applicable to near-surface disposal, the Commission still believes they would be useful to a prospective license applicant as guidance for planning an above-ground facility and to the NRC or Agreement States in the development of technical requirements for such facilities.

To provide further clarification regarding the applicability of part 61 to the licensing of above-ground disposal facilities, NRC also is amending the "Disposal Facility" discussion in the Concepts Section—61.7. The change to § 61.7(a)(1) clarifies the distinction made by the NRC between near-surface

disposal and above-ground disposal, to emphasize that near-surface LLW disposal facilities built partially or totally above-grade have protective earthen covers, while similar facilities constructed without earthen covers are considered to be "above-ground disposal facilities."

NRC is not providing either technical criteria or guidance for above-ground disposal designs with these amendments. It is expected that, should NRC receive an application for above-ground disposal, criteria will be developed on a case-by-case basis.

II. Replace the term "quality control program" in § 61.12(j) with the term "quality assurance program, tailored to LLW disposal." The purpose of this change is to clarify what steps an applicant for an LLW disposal facility license must take in order to assure that the facility will perform as intended, and also to assure that the necessary records and documentation are available for evaluation and performance assessment by NRC or an Agreement State at the time of license submittal. Quality assurance is a broad term that encompasses quality control and also includes managerial controls and audits.

III. Revise § 61.8 to indicate that the NRC requested and obtained OMB approval for the information collection requirements in part 61. Under the OMB guidelines that were in effect when the original part 61 was issued, OMB approval of the part 61 information collection requirements was not necessary because the regulation was expected to affect less than 10 licensees. Subsequently the OMB guidelines changed, and part 61 was no longer exempt from the OMB approval requirement. Accordingly, NRC submitted part 61 for OMB review and obtained the OMB clearance that is required by the Paperwork Reduction Act. The purpose of this change is to update § 61.8 to correctly reflect this approval.

IV. Revise § 61.80(i)(1) to identify the correct NRC headquarters recipient of copies of the annual report.

Issue of Compatibility for Agreement States

Under existing NRC policy and guidelines, two of the changes adopted in this rulemaking would be matters of compatibility for the NRC Agreement States. The change to the definition of land disposal facility in § 61.2 is a matter of Division I compatibility, and the "QC" to "QA" change in § 61.12(j) is a matter of Division II compatibility. This means that those Agreement States that have assumed NRC's regulatory authority for the disposal of LLW under

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section 274 of the Atomic Energy Act (AEA) of 1954, as amended, normally would be required to incorporate the new definition of "land disposal facility" essentially verbatim directly into their State regulations for LLW disposal. However, States who have already selected a disposal technology and adopted a more narrow regulatory definition of "land disposal facility" to reflect that selected technology, will not be required to amend their regulatory definition to conform to this revision, provided the selected technology falls within the scope of 10 CFR part 61 and the definition is not inconsistent with the NRC definition.

The incorporation of the Division II change is also required; however, the Agreement States have more flexibility than for the Division I change. For the Division II change, the language adopted need not be identical to the NRC regulations, but the effect cannot be less stringent.

Based on the existing guidelines, the changes would have to be incorporated within 3 years after this final rule is issued.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969 as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. Three of the proposed changes—the "quality control" to "quality assurance" change in § 61.12(j), the update of the Paperwork Reduction Act Statement in § 61.8, and the correction of the organizational inconsistency in § 61.80(i)(1) are the types of actions described in categorical exclusion § 51.22(c)(2). As such they are considered by the Commission to be corrective and nonsubstantive in nature and will not have an impact on the environment. The remaining changes, which clarify the applicability of part 61 to the licensing of above-ground LLW disposal, also will not have an impact on the environment in that these amendments do not change the required level of overall performance for LLW disposal facilities. Furthermore, any environmental impact of operating such a facility will be addressed as a part of the licensing action for that specific facility under 10 CFR part 51. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document

Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Mark Halsfield, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3877.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0135.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the alternatives considered by the Commission and explains the decision to revise part 61. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Mark Halsfield, (301) 492-3877.

Regulatory Flexibility Certification.

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The changes made to part 61 in this rule will only affect those entities that decide to apply for a license to build and operate an LLW disposal facility. In the Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA) and the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA), Congress mandated that the individual States or groups of States called compacts should provide the LLW disposal capacity for the LLW generated within each of their borders. Thus the licensees for LLW disposal facilities will either be States or private operators which are not small entities under the size standards established by the Nuclear Regulatory Commission on November 8, 1991 (58 FR 56671). In addition, this rule will not have a significant economic impact because the changes to part 61 are clarifying in nature, and only a small number of licensees are likely to be affected.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore,

that a backfit analysis is not required for this final rule because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 61

Criminal penalty, Low-level waste, Nuclear materials, Reporting and recordkeeping requirements, Waste treatment and disposal.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 61.

58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

58 FR 67657
Published 12/22/93
Effective 1/1/94

*Standards for Protection Against
Radiation; Removal of Expired Material*

See Part 20 Statements of Consideration

60 FR 15649
Published 3/27/95
Effective 3/1/98

*Low-Level Waste Shipment Manifest
Information and Reporting*

See Part 20 Statements of Consideration

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60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

61 FR 6762
Published 2/22/96
Effective 4/22/96

*Employee Protection Policies; Minor
Amendments*

See Part 19 Statements of Consideration

61 FR 24669
Published 5/16/96
Effective 6/17/96

*Termination or Transfer of Licensed
Activities; Recordkeeping
Requirements*

See Part 20 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
62**

**CRITERIA AND PROCEDURES FOR EMERGENCY ACCESS TO
NON-FEDERAL AND REGIONAL LOW-LEVEL WASTE
DISPOSAL FACILITIES**

STATEMENTS OF CONSIDERATION

54 FR 5409
Published 2/3/89
Effective 3/6/89

10 CFR Part 62

**Criteria and Procedures for
Emergency Access to Non-Federal
and Regional Low-Level Waste
Disposal Facilities**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is issuing this rule to establish criteria and procedures for fulfilling its responsibilities associated with acting on requests by low-level radioactive waste generators, or State officials on behalf of those generators, for emergency access to operating, non-Federal or regional, low-level radioactive waste disposal facilities under section 6 of the Low-Level Radioactive Waste Policy Amendments Act of 1985. Grants of emergency access may be necessary if a generator of low-level radioactive waste is denied access to operating low-level radioactive waste disposal facilities and the lack of this access results in a serious and immediate threat to the public health and safety or the common defense and security.

EFFECTIVE DATE: March 6, 1989.

ADDRESS: Copies of comments received on the proposed rule and the regulatory analysis may be examined at the NRC Public Document Room, 2120 L Street NW., Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: Janet Lambert, Division of Engineering, Office of Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3857.

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SUPPLEMENTARY INFORMATION:

- I. Introduction and Background
- II. Legislative Requirements
- III. Legislative History
- IV. NRC Approach
- V. Assumptions
- VI. The Final Rule
- VII. Rationale for Criteria
- VIII. Terms and Conditions for Emergency Access Disposal
- IX. Analysis of Public Comments
- X. Finding of No Significant Environmental Impact: Availability
- XI. Paperwork Reduction Act Statement
- XII. Regulatory Analysis
- XIII. Regulatory Flexibility Certification
- XIV. Backfit Statement
- XV. List of Subjects

I. Introduction and Background

On December 15, 1987, NRC published in the Federal Register (52 FR 47587) a proposed new Part 62 to 10 CFR in order to implement its emergency access responsibilities under section 6 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99-240, January 15, 1986), "the Act." The proposed Part 62 set forth the criteria and procedures that the Commission intended to use to determine if emergency access to non-Federal and regional low-level waste (LLW) disposal facilities should be granted. The public comment period for the proposed rule expired on February 12, 1988. The NRC received twenty-one (21) comment letters from ten concerned citizens and environmental groups, six State governments, two LLW compact Commissions, two industries and one nuclear information service.

The Act directs the States to develop their own low-level radioactive waste (LLW) disposal facilities or to form Compacts and cooperate in the development of regional LLW disposal facilities so that the new facilities will be available by January 1, 1993. The Act establishes procedures and milestones for the selection and development of the LLW disposal facilities. The Act also establishes a system of incentives for meeting the milestones, and penalties for failing to meet them, which is intended to ensure steady progress toward new facility development.

The major incentive offered by the Act is that the States and regional Compacts that meet the milestones will be allowed to continue to use the existing disposal facilities until their own facilities are available, which is to be no later than January 1, 1993. If unsited States or Compact regions fail to meet key milestones in the Act, the States or Compact Commissions with operating non-Federal or regional LLW disposal facilities are authorized to demand additional fees for wastes

accepted for disposal, and ultimately to deny the LLW generators in the delinquent State or Compact region further access to their facilities.

Section 6 of the Act provides that the Nuclear Regulatory Commission (NRC) can determine to grant a generator "emergency access" to non-Federal or regional low-level radioactive waste (LLW) disposal facilities if access to those facilities has been denied and access is necessary in order to eliminate an immediate and serious threat to the public health and safety or the common defense and security. The Act also requires that NRC determine whether the threat can be mitigated by any alternative consistent with the public health and safety, including ceasing the activities that generate the waste. NRC must be able, with the information provided by the requestor, to make both determinations prior to granting emergency access. The purpose of this regulation is to set forth the criteria and procedures that will be used by the Commission to determine if emergency access to a LLW facility should be granted.

II. Legislative Requirements

In addition to directing the NRC to grant emergency access as discussed in the Background section, the Act further directs NRC to designate the operating LLW disposal facility or facilities where the waste will be sent for disposal if NRC determines that the circumstances warrant a grant of emergency access. NRC is required to notify the Governor (or chief executive officer) of the State in which the waste was generated that emergency access has been granted, and to notify the State and Compact which will be receiving the waste that emergency access to their LLW disposal facility is required. The Act limits NRC to 45 days from the time a request is received to determine whether emergency access will be granted and to designate the receiving facility.

The Act provides that NRC can grant emergency access for a period not to exceed 180 days per request. To ensure that emergency access is not abused, the Act allows that only one extension of emergency access, not to exceed 180 days, is to be granted per request. An extension can be approved only if the LLW generator who was originally granted emergency access and the State in which the LLW was generated have diligently, though unsuccessfully, acted during the period of the initial grant to eliminate the need for emergency access.

The Act also provides that requests for emergency access shall contain all

information and certifications that NRC requires to make its determination.

"Temporary emergency access" to non-Federal or regional LLW disposal facilities may be granted at the Commission's discretion because of a serious and immediate threat to the public health and safety or the common defense and security, pending a Commission determination as to whether the threat could be mitigated by suitable alternatives. The grant of temporary emergency access expires 45 days after it is granted.

The Act does not require NRC to develop a rule to carry out its section 6 responsibilities. However, NRC is issuing this rule to establish the criteria and procedures that will be used in making the required determinations for emergency access. Although Congress provided NRC the statutory responsibility for implementing section 6 of the Act and gave the Commission authority to decide whether access will be provided, emergency access decisions are likely to be controversial. By setting out the criteria and procedures for making emergency access decisions in a rule that reflects public comment, NRC intends to add predictability to the decisionmaking process and to help ensure that the NRC will be able to make its decisions on emergency access requests within the time allowed by the Act.

III. Legislative History

The legislative history of the Act emphasizes the Congressional intent that emergency access be used only in very limited and rare circumstances and that it was not intended to be used to circumvent other provisions of the Act. Congress believed it was important for the successful implementation of the Act that emergency access not be viewed by the unsited States as an alternative to the pursuit of the development of new LLW disposal capacity. The legislative history indicates that Congress believed that with the various management options available to LLW generators, including, for example, storage or ceasing to generate the waste, that instances where there was no alternative to emergency access would be unlikely. Congress expected that responsible action from the generators and the States/Compacts should resolve most access problems thus precluding the necessity for involving the Federal sector in granting emergency access. Section 6 was included to provide a mechanism for Federal involvement as a vehicle of last resort.

In developing the emergency access rule, NRC tried to be consistent both

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with the actual text of section 6 of the Act and with the intent expressed by Congress regarding decisions made pursuant to section 6. The rule sets strict requirements for granting emergency access and should serve to encourage potential requesters to seek other means for resolving the problems created by denial of access to LLW disposal facilities. The rule places the burden on the party requesting emergency access to demonstrate that the criteria in the rule have been met and emergency access is needed. Applicants for emergency access will have to provide clear and convincing evidence that they have exhausted all other options for managing their waste. By establishing strict requirements for approving requests for emergency access, NRC intends to reinforce the idea that problems with LLW disposal are to be worked out to the extent practical among the States, and that emergency access to existing LLW facilities will not automatically be available as an alternative to developing that capacity. NRC believes this interpretation is consistent with a plain reading of the Act and the supporting legislative history.

Section 6(g) of the Act requires the NRC to notify the Compact Commission for the region in which the disposal facility is located of any NRC grant of access "for such approval as may be required under the terms of its compact." The Compact Commission "shall act to approve emergency access not later than fifteen days after receiving notification" from the NRC. The purpose of this provision is to—

- Ensure that the Compact Commission is aware of the NRC's grant of emergency access and the terms of the grant,
- Allow the Compact Commission to implement any administrative procedures necessary to carry out the grant of access, and
- Ensure that the limitations on emergency access set forth in section 6(h) of the Act have not been exceeded.

However, it is clear from the legislative history of the Act that section 6(g) should not be construed as providing the Compact Commission with a veto over the NRC's grant of emergency access. The basic purpose of the section 6 emergency access provision is to ensure that LLW disposal sites that have denied access to certain States under provisions of the Act will be made available to receive waste in situations posing a serious and immediate threat to the public health and safety. A Compact Commission veto would frustrate the purpose of the emergency access provision and would

be generally contrary to the legislative framework established in the Act. As emphasized in the House Committee on Interior and Insular Affairs Report on the Act, ratification of a Compact should be conditioned on the Compact's acting in accord with the provisions of the Act. If the Compact refuses to provide, under its own authorities, emergency access under section 6, Congressional ratification of that Compact would be null and void. H.R. REP. No. 314, 99th Cong., 1st Sess., pt. 1, at 2997 (1985).

IV. NRC Approach

In developing this rule, the NRC's approach was to:

1. Ensure that all of the principal provisions of section 6 of the Act are addressed in the regulation.
2. Identify the information and certifications that will have to be submitted with any request for emergency access in order for NRC to make the necessary determinations.
3. Ensure that the criteria and procedures that are established in 10 CFR Part 62 can be implemented within 45 days after NRC receives a request as specified in the Act.
4. Establish criteria and procedures for designating a site to receive the waste that are fair and equitable and that are consistent with the other provisions of the Act, including the limits on the amount of waste that can be disposed of at each operating facility.
5. Establish requirements for granting emergency access that are stringent enough to discourage the unsited States and regions from viewing emergency access as an alternative to diligent pursuit of their own disposal capability, and yet flexible enough to allow NRC to respond appropriately in situations where emergency access is genuinely needed to protect the public health and safety or the common defense and security.

V. Assumptions

NRC made several assumptions in developing this rule.

NRC assumed that the wastes requiring disposal under the emergency access provision will be the result of unusual circumstances. The nature of routine LLW management is such that it is difficult to conceive of situations where denial of access to disposal would create a serious and immediate threat to the public health and safety or the national security. In most cases generators should be able to safely store routinely generated LLW or employ other options for managing the waste without requiring emergency access. Thus, if all the LLW generators in a State were denied access to LLW

disposal facilities, NRC would not expect to receive a blanket request for emergency access for all of the LLW generated in that State, or for all of the LLW generated by a particular kind of generator since the need for emergency access would be different in each case.

NRC has also assumed that requests for emergency access will not be made for wastes that would otherwise qualify for disposal by the Department of Energy (DOE) under the unusual volumes provision of the Act (Section 5(c)(5)). This means that NRC does not intend to consider requests for emergency access for wastes generated by commercial nuclear power stations as a result of unusual or unexpected operating, maintenance, repair, or safety activities. Section 5(c)(5) of the Act specifically sets aside 800,000 cu ft of disposal capacity above the regular reactor allocations through 1992 to be used for those wastes. With this space reserved for wastes qualifying for the "unusual volumes allocation," NRC believes emergency access should be reserved for other LLW, until the 800,000 cu ft allocation is exceeded.

NRC considered basing its decisions for granting emergency access solely on quantitative criteria, but decided against that approach. While NRC has identified some of the wastes and the scenarios which would create a need for emergency access, it is unlikely that all possibilities can be predicted or anticipated. Largely, because of the uncertainty associated with identifying all of the circumstances under which emergency access may be required, NRC has avoided establishing criteria with absolute thresholds. Instead, the rule contains a combination of qualitative and quantitative criteria with generic applicability. NRC believes this combination provides maximum flexibility in considering requests for emergency access on a case-by-case basis.

VI. The Final Rule

The final rule contains four Subparts, A, B, C, and D. These Subparts set out the requirements and procedures to be followed in requesting emergency access and in determining whether or not requests should be granted. Each Subpart is summarized and discussed here.

Subpart A—General Provisions

Subpart A contains the purpose and scope of the rule, definitions, instructions for communications with the Commission, and provisions relating to interpretations of the rule. Subpart A states that the rule applies to all persons

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as defined by this regulation who have been denied access to existing commercial LLW disposal facilities and who submit a request to the Commission for an emergency access determination under section 6 of the Low-Level Radioactive Waste Policy Amendments Act of 1985. Subpart A also emphasizes that the emergency access rule applies only to those subclasses of LLW for which the States have disposal responsibility under Section 3(1)(a) of the Act.

Subpart B—Request for a Commission Determination

Subpart B specifies the information that must be submitted and the procedures that must be followed by a person seeking a Commission determination on emergency access.

Specifically, Subpart B requires the submission of information on the need for access to LLW disposal sites, the quantity and type of material requiring disposal, impacts on health and safety or common defense and security if emergency access were not granted, and consideration of available alternatives to emergency access. This information will enable the Commission to determine:

(a) Whether a serious and immediate threat to the public health and safety or the common defense and security might exist,

(b) Whether alternatives exist that could mitigate the threat, and

(c) Which non-Federal disposal facility or facilities should provide the required disposal.

In addition, Subpart B also sets forth procedures for the filing and distribution of a request for a Commission determination. It provides for publishing in the Federal Register a notice of receipt of a request for emergency access to inform the public that Commission action on the request is pending. Although comment is not required by the Act or the Administrative Procedure Act, Subpart B provides for a 10-day public comment period on the request for emergency access.

In the event that the case for requesting emergency access is to be based totally or in part on the threat posed to the common defense and security, Subpart B specifies that upon receiving such a request, NRC will consult with the Department of Energy (DOE) and or the Department of Defense (DOD) to ascertain the importance to the common defense and security of the activities producing the LLW for which emergency access is requested.

Subpart C—Issuance of a Commission Determination

For the NRC to grant emergency access, the Commission must first conclude that there is a serious and immediate threat to the public health and safety or the common defense and security, and second that there are no available mitigating alternatives. Subpart C sets out the procedures to be followed by the Commission in considering requests for emergency access, for granting extensions of emergency access, and for granting temporary emergency access; establishes the criteria and standards to be used by the Commission in making those determinations; and specifies the procedures to be followed in issuing them.

Subpart C provides that NRC, in determining whether there is a serious and immediate threat to the public health and safety, will consider: (1) The nature and extent of the radiation hazard that would result from the denial of access including consideration of the standards for radiation protection contained in 10 CFR Part 20, any standards governing the release of radioactive materials to the general environment that are applicable to the facility that generated the low-level waste, and any other Commission requirements specifically applicable to the facility or activity which is the subject of the emergency access request and, (2) the extent to which essential services such as medical, therapeutic, diagnostic, or research activities will be disrupted by the denial of emergency access.

In determining whether there is a serious and immediate threat to the common defense and security, Subpart C provides that the Commission will consider whether the activity generating the LLW is necessary to protect the common defense and security and whether the lack of access to a disposal site would result in a significant disruption in that activity that would seriously threaten the common defense and security. Subpart C also specifies that the Commission will seek and consider DOD and DOE viewpoints on the importance of the activities responsible for generating the LLW to the common defense and security.

Under Subpart C, if the Commission makes either of the above determinations in the affirmative, then the Commission will consider whether alternatives to emergency access are available to the requestor. The Commission will consider whether the person submitting the request has identified and evaluated the alternatives

available which could potentially mitigate the need for emergency access. The Commission will consider whether the person requesting emergency access has considered all factors in the evaluation of alternatives including state-of-the-art technology and the impacts of the alternatives on the public health and safety. For each alternative, the Commission will also consider whether the requestor has demonstrated that the implementation of the alternative is unreasonable because of adverse effects on the public health and safety or the common defense and security, because it is technically or economically beyond the capability of the requestor, or because the alternative could not be implemented in a timely manner.

Of particular concern to Congress was the possibility that ceasing the activity responsible for generating the waste could lead to the cessation or curtailment of essential medical services. Section 62.25 of the rule provides that the Commission will consider the impact on medical services from ceasing the activity in making its determination that there is a serious and immediate threat to the public health and safety. The Commission is also concerned as to whether the implementation of other alternatives may have a disruptive effect on essential medical services. Section 62.12 specifically requests information on these impacts as part of a request for emergency access so they can be considered by the Commission in its overall determination about reasonable alternatives.

According to the procedures set out in Subpart C, the Commission will only make an affirmative determination on granting emergency access if the available alternatives are found to be unreasonable. If an alternative is determined by NRC to be reasonable, then the request for emergency access will be denied.

If the Commission determines that there is a serious and immediate threat to the public health and safety or the common defense and security which cannot be mitigated by any alternative, then the Commission will decide which operating non-Federal LLW disposal facility should receive the LLW approved for emergency access disposal.

Subpart C sets out that in designating a disposal facility or facilities to provide emergency access disposal, the Commission will first consider whether a facility should be excluded from consideration because: (1) The LLW does not meet the license criteria for the

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site; (2) the disposal facility meets or exceeds its capacity limitations as set out in the Act; (3) granting emergency access would delay the planned closing of the facility; or (4) the volume of the waste requiring disposal exceeds 20 percent of the total volume of the LLW accepted for disposal at the site in the previous calendar year. If the designation cannot be made on these factors alone, then the Commission will consider the type of waste, previous disposal practices, transportation requirements, radiological effects, site capability for handling the waste, volume of emergency access waste previously accepted at each site, and any other information the Commission deems necessary.

In making a determination regarding a request for an extension of emergency access, Subpart C provides that the Commission will consider whether the circumstances still warrant emergency access and whether the person making the request has diligently acted during the period of the initial grant to eliminate the need for emergency access.

In making a determination that temporary emergency access is necessary, the Commission will have to consider whether the emergency access situation falls within the criteria and examples in the Commission's policy statement on abnormal occurrences, but will not have to reach a determination regarding mitigating alternatives.

Subpart D—Termination of Emergency Access

Subpart D establishes that the NRC may terminate a grant of emergency access if the requestor or the type of waste do not meet the conditions established by NRC pursuant to this part. It also establishes that the Commission may terminate emergency access when it determines that emergency access is no longer necessary to protect the public health and safety or the common defense and security from a serious and immediate threat.

VII. Rationale for Criteria

This rule establishes the criteria for making the emergency access determinations required by the Act. The rationale for these decisions is discussed below:

(a) Determination that a Serious and Immediate Threat Exists

Establishing the criteria to be used in determining that a serious and immediate threat exists to the public health and safety or the common defense and security is key to NRC's decisions to grant emergency access.

Neither the Act nor its legislative history provide elaboration regarding Congressional intent for what would constitute "a serious and immediate threat."

(1) To the Public health and safety—

The criteria in this rule for determining whether a serious and immediate threat to the public health and safety exists, address three situations. Section 62.25(b)(i) addresses the situation where the lack of access would result in a radiation hazard at the facility that is generating the LLW. Section 62.25(b)(ii) addresses the situation where the threat to public health and safety would result from disruption of the activity that generates the waste, for example, an essential medical service. Section 62.25(c) addresses the criteria for granting temporary emergency access.

The criteria used in this rule for determining whether a serious and immediate threat to the public health and safety exists is qualitative in nature in order to provide the Commission with the flexibility necessary to consider a wide range of potential factual situations. However, in making this qualitative determination, the criteria require the Commission to consider several existing quantitative standards. These consist of the Commission's standards for radiation protection in 10 CFR Part 20, any standards on the release of radioactive materials to the general environment that are applicable to the facility that generated the LLW, and any other Commission requirements specifically applicable to the facility or activity which is the subject of the emergency access request. This latter category would include license provisions, orders, and similar requirements.

The Congressional concern in enacting section 6 of the Act was to ensure that a serious and immediate threat to the public health and safety did not result from a denial of access. In addressing this concern, the Commission will evaluate the request for emergency access in its entirety, i.e., the threat to public health and safety and the alternatives to emergency access that may be available to mitigate that threat. In other words, in determining what constitutes a serious and immediate threat to public health and safety, the Commission must consider what threat would be unacceptable assuming that no alternatives are available. In the Commission's judgment, any situation that would result in exceeding the occupational dose limits or basic limits of public exposure upon which certain requirements in 10 CFR Part 20 are

founded would be an unacceptable threat to the public health and safety, and should be considered for emergency access.

The legislative history of section 6 of the Act does not provide any illustrations of a situation where a serious and immediate threat to the public health and safety would be created at the facility at which the waste is stored, although it is clear that Congress was concerned over the potential radiation hazard that might result at a particular facility that was denied access to LLW disposal. The Commission does not anticipate any situation where the lack of access would create a serious and immediate threat to the public health and safety. However, in order to be able to respond to the unlikely, but still possible, situation where a serious threat to the public health and safety might result, this rule establishes criteria to address this possibility. Under its normal regulatory responsibilities and authority, the Commission would act immediately to prevent or mitigate any threat to the public health and safety, including shutting down the facility. However, there may be circumstances where a potential safety problem would still exist, after the facility was shut down or the activity stopped, if the low level waste could not be disposed of because of denial of access. In this situation, emergency access may be needed. The Commission would emphasize, first, that it is extremely unlikely that a serious and immediate threat to the public health and safety will ever result at the generator's facility from the lack of access to a disposal facility, and, second, if such a situation does exist, the Commission will move immediately to eliminate the threat.

If the Commission does receive a request for emergency access based on the above circumstances, the Commission will evaluate the nature and extent of the radiation hazard. If there is no violation of the Commission's generic or facility-specific radiation protection standards, no serious and immediate threat would exist from the waste itself. This is separate from a finding that a serious and immediate threat to the public health and safety would exist if the activity were forced to shut down.

Section 6(d) of the Act allows the Commission to grant temporary emergency access for a period not to exceed 45 days solely upon a finding of a serious and immediate threat to the public health and safety. In order to grant temporary emergency access, the Commission is not required to evaluate

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the availability of alternatives to emergency access that would mitigate the threat. The Commission believes that grants of temporary emergency access should be reserved for the most serious threat to public health and safety, and has accordingly established criteria for granting temporary emergency access that require the consideration of more serious events. For purposes of granting temporary emergency access under § 62.23, the Commission will consider the criteria and examples contained in the Commission's Policy Statement (45 FR 10950, February 24, 1977) for determining whether an event at a facility or activity licensed or otherwise regulated by the Commission is an abnormal occurrence within the purview of section 208 of the Energy Reorganization Act of 1974. This provision requires the Commission to keep Congress and the public informed of unscheduled incidents or events which it considers significant from the standpoint of public health and safety. Under the criteria established in the Commission's policy statement, an event will be considered an abnormal occurrence if it involves a major reduction in the degree of protection provided to public health and safety. Such an event could include—

- a. Moderate exposure to, or release of, radioactive material;
- b. Major degradation of safety related equipment; or
- c. Major deficiencies in design, construction, use of, or management controls for licensed facilities or activities.

In deciding whether to grant temporary emergency access, the Commission will evaluate whether the emergency access situation falls within the criteria in the Commission's policy statement on abnormal occurrences.

(2) To the common defense and security—

Although NRC is required by the Act to determine that there is either a serious and immediate threat "to the public health and safety," or to "the common defense and security," realistically NRC cannot make the latter judgement without some information from DOD and DOE which will assist NRC in identifying those situations involving the denial of access to LLW disposal which constitute a serious and immediate threat to the national defense and security, or the importance of a particular LLW generator's activities in maintaining those objectives. While NRC has the Congressional mandate for this determination, the staff believe it necessary to consider DOD and DOE information as part of the decisionmaking process.

NRC considered several approaches for involving DOD and DOE in the process of determining whether requests for emergency access should be granted on the basis of a serious and immediate threat to the common defense and security. In the proposed rule NRC decided that the best way to provide such interaction would be to require that requests filed with NRC for emergency access on the basis of a serious and immediate threat to the common defense and security, would have to include appropriate certification from DOE and or DOD substantiating the requestor's claim that such a threat would result if emergency access is not granted. NRC proposed that the necessary certification in the form of a statement of support should be acquired by the requestor prior to applying to NRC for emergency access so the statement of support could be a part of the actual petition.

Discussions with DOD and DOE regarding the proposed arrangement have led NRC to include a modified procedure in the final rule. A generator whose request for emergency access is based in whole or in part on a serious and immediate threat to the common defense and security is no longer required to include a DOD and or DOE statement of support for that claim in the request package submitted to NRC. Rather, NRC will consult with DOD and or DOE directly to ascertain the importance of the activities responsible for generating the LLW to the common defense and security. In reaching a determination as to whether emergency access should be granted in order to protect the common defense and security, the NRC will consider whether DOE and or DOD support the generator's claim regarding the strategic importance of the activity.

Negotiations with DOD and DOE regarding this procedure were underway in parallel with the development of the final rule. Letters of intent between the NRC and DOD and DOE that establish the process for obtaining the DOD and DOE recommendations on the importance of the requestor's activities to the common defense and security are expected by the time the rule is published. DOD and DOE staffs are aware of the 45 day response time imposed on NRC to make the emergency access determinations and the agreement will provide for expeditious action by DOD and DOE.

Congress deliberately gave the NRC the responsibility for making the common defense and security determination rather than leaving the determination with DOD or DOE. So while the Commission intends to give the DOD and DOE statements of support

and recommendations full consideration in evaluating requests for emergency access, the Commission will not treat them as conclusive.

(b) Determination on Mitigating Alternatives

As directed by section 6 of the Act, even if a situation exists which poses a serious and immediate threat to the public health and safety or the common defense and security, emergency access is not to be granted if alternatives are available to mitigate the threat in a manner consistent with the public health and safety. Requestors for emergency access are required to demonstrate that they have explored the alternatives available and that the only course of action remaining is emergency access. Only after this has been demonstrated to NRC will the Agency proceed with a grant of emergency access.

Alternatives which, at a minimum, a requestor will have to evaluate are set out in section 6(c)(1)(B) of the Act. They include (1) storage of LLW at the site of generation or in a storage facility, (2) obtaining access to a disposal facility by voluntary agreement, (3) purchasing disposal capacity available for assignment pursuant to section 5(c) of the Act, and (4) ceasing the activities that generate the LLW.

While section 6(c)(1)(B) of the Act sets these out as possible alternatives which a generator must consider before requesting emergency access, NRC has identified other possible alternatives to emergency access which should be considered, as appropriate, in any requests for emergency access. These additional alternatives are discussed below.

Section 5(c)(5) of the Act, "Unusual Volumes," provides owners and operators of commercial nuclear reactors with special access to disposal in the event that unusual or unexpected operating, maintenance, repair or safety activities produce quantities of waste which cannot be otherwise managed or disposed of under the Act. NRC does not consider that Congress intended that disposal under the emergency access provision was to apply to the section 5(c)(5) wastes unless the capacity required for disposals under the unusual volume provision would exceed the 800,000 cubic feet allocated for those purposes. Thus, NRC has taken the position in this rule that as long as unusual volumes disposal capacity is available for LLW which qualifies for such disposal, emergency access should not be requested. Applications for emergency access for wastes which NRC determines would otherwise be

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eligible for disposal under the unusual volumes provision, will be denied.

Another alternative applies only to Federal or defense related generators of LLW. NRC will expect that generators of LLW falling into either of these categories will attempt to arrange for disposal at a Federal LLW disposal facility prior to requesting access to non-Federal facilities under the emergency access provision.

The Commission fully intends that the States and Compacts whose generators have been denied access to LLW disposal will share in the responsibility for identifying and providing alternatives to emergency access. NRC's expectation is that the States and appropriate Compacts, as well as the generator, will each exhaust their options before emergency access will be requested. A request for emergency access is to include a discussion of the consideration given to any alternatives available to the requestor. To NRC, this includes State/Compact options as well as those available to the individual generator. NRC expects that any request would address the alternatives explored by each of these, and the actions taken.

For all the alternatives that are considered, NRC is requiring detailed information from the requestor regarding the decision process leading to a request for emergency access. The requestor will be expected to: (1) Demonstrate that all pertinent alternatives have been considered; (2) provide a detailed analysis comparing all of the alternatives considered; (3) demonstrate that consideration has been given to combining alternatives in some way or in some sequence either to avoid the need for emergency access, or to resolve the threat, even on a temporary basis, until other arrangements can be made; (4) evaluate the costs, economic feasibility, and benefits to the public health and safety of the potential alternatives, and (5) incorporate the results into the request.

(c) Designation of Site

In deciding which of the operating, non-Federal or regional LLW disposal facilities will receive the LLW requiring emergency access, NRC will determine which of the disposal facilities would qualify under the limitations set out in section 6(h) of the Act. According to those limitations, a site would be excluded from receiving emergency access waste if (1) the LLW does not meet the license criteria for the site; (2) the disposal facility meets or exceeds its capacity limitations as set out in the Act; (3) granting emergency access would delay the planned closing of the facility; or (4) the volume of the waste

requiring disposal exceeds 20 percent of the total volume of the LLW accepted for disposal at the site in the previous calendar year.

If NRC cannot designate a site using the limitations in the Act alone, the Commission will consider other factors including the type of waste, previous disposal practices, transportation requirements, radiological effects of the waste, the capability for handling the waste at each site, the volume of emergency access waste previously accepted by each site, and any other information that would be necessary in order to come to a site designation decision.

Within the requirements of the above criteria, the NRC will, to the extent practical, attempt to distribute the waste as equitably as possible among the available operating, non-Federal or regional LLW disposal facilities. To the extent practicable, NRC intends to rotate the designation of the receiving site, and, for the three currently operating facilities, to allocate emergency access disposal in proportion to the volume limitations established in the Act. In most cases, NRC would expect that the designation of a single site will minimize handling of and exposure to the waste and best serve the interest of protecting the public health and safety. However, if the volume of waste requiring emergency access disposal is large, or if there are other unusual or extenuating circumstances, NRC will evaluate the advantages and disadvantages of designating more than one site to receive waste from the same requestor.

In addition to the above, NRC will also consider how much waste has been designated for emergency access disposal to each site to date (both for the year and overall), and whether the serious and immediate threat posed could best be mitigated by designating one site or more to receive the waste.

In order for NRC to make the most equitable site designation decisions, the Agency will have to be well informed regarding the status of disposal capacity for each of the commercially operating waste disposal facilities. NRC is currently in the process of developing a system to provide this information.

It should be noted that in setting out the site designation provision for section 5, Congress assumed there would always be a site deemed appropriate to receive the emergency access waste. However, this may not be the case if all sites are eliminated by application of the limitations provision set forth in the Act. It is not clear what options Congress intended NRC to consider if all sites are deemed inappropriate to

receive the LLW. This may have to be addressed by Congress at some time in the future.

(d) Volume Reduction Determination

Section 6(i) of the Act requires that any LLW delivered for disposal as a result of NRC's decision to grant emergency access "should be reduced in volume to the maximum extent practicable." NRC will evaluate the extent to which volume reduction methods or techniques will be or have been applied to the wastes granted emergency access in order to arrive at a finding in regards to this provision.

NRC may receive a request for emergency access where the application of volume reduction techniques may be sufficient to mitigate the threat posed to the public health and safety. As a result, NRC plans to evaluate the extent to which waste has been reduced in volume as a part of its mandated evaluation of the alternatives considered by the generator. From that evaluation, the NRC could reach a finding on whether the waste has been reduced in a manner consistent with section 6(i).

As is so for the other determinations NRC will have to make pursuant to section 8, volume reduction determinations will be made on a case-by-case basis. The optimal level of volume reduction will vary with the waste, the conditions under which it is being processed or stored, the administrative options available, and whether volume reduction processing creates new wastes requiring treatment or disposal. In evaluating whether the wastes proposed for emergency access have been reduced in volume to the maximum extent practicable, NRC will consider the characteristics of the wastes (including: Physical properties, chemical properties, radioactivity, pathogenicity, infectiousness, and toxicity, pyrophoricity, and explosive potential); condition of current container; potential for contaminating the disposal site; the technologies or combination of technologies available for treatment of the waste (including incinerators; evaporators-crystallizers; fluidized bed dryers; thin-film evaporators; extruders evaporators; and Compactors); the suitability of volume reduction equipment to the circumstances (specific activity considerations, actual volume reduction factors, generation of secondary wastes, equipment contamination, effluent releases, worker exposure, and equipment availability); and the administrative controls which could be applied.

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VIII. Terms and Conditions for Emergency Access Disposal

LLW granted emergency access disposal pursuant to this rule is subject to the general requirements for LLW disposal as established in the Act, as well as those requirements which specifically address emergency access. This means that LLW granted emergency access shall be processed, treated and disposed of in a manner consistent with any other LLW which is eligible for disposal at operating non-federal or regional LLW disposal facilities under the Act. The disposal of waste by grant of emergency access should not preclude the implementation of any specific conditions, regulations, requirements, fees, surcharges or taxes prescribed by the disposal facility that may be in effect at the time of the Commission's determination to grant emergency access. However, while generators whose LLW is granted emergency access are subject to the special fees and surcharges specified in the Act for emergency access disposal, they should not otherwise be subject to fees or requirements that are not customarily charged or imposed for routine LLW disposal.

IX. Analysis of Public Comments

The Commission received twenty-one (21) comment letters for the proposed rule. Ten (10) of the comment letters came from concerned citizens, six (6) from the governments of potentially affected States, two (2) from low-level waste compacts, two (2) from the industry and one (1) from a nuclear information service. A detailed analysis of each of the comments was prepared and used to revise the proposed rule. The major comments are discussed here. Copies of the comment letters and the detailed analysis of comments are available for public inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW., Washington, DC 20555.

In general, commentors expressed support for NRC's issuance of a rule for its emergency access decisions and indicated changes that would improve it from their perspective. Only one commentor, representing a lobbying group, expressed opposition to the issuance of the rule. That commentor indicated that the rule should be withdrawn because granting emergency access would infringe on the States' right to manage their LLW. The Act established the statutory framework for the management of LLW including the allocation of management responsibility between the Federal government and the States. The emergency access rule

merely implements part of the existing statutory framework, so the rule itself does not infringe on the rights of the States.

Clarification of LLW Eligible for Emergency Access

By far the most common concern expressed by commentors was that emergency access would be used to force operating non-Federal or regional LLW disposal facilities to accept LLW they are either clearly not responsible for under the Act, or have specifically chosen to exclude from their facility. Fourteen of the commentors in almost half of the comments expressed concern that emergency access would be granted to wastes that were not typically to be considered eligible for disposal at non-Federal or regional LLW disposal facilities. Specifically, the commentors stated that Federal wastes, particularly those generated by DOE and DOD, or wastes that are classified as greater-than-Class-C, should not be granted emergency access. Many of the commentors indicated that States and Compacts are not designing their facilities to provide safe disposal for these types of LLWs. Most of the commentors who expressed concern about which wastes would be granted emergency access were concerned that LLWs determined to be ineligible for routine disposal under the Act, could gain access to disposal at State or regional facilities under the emergency access provision.

Throughout the development of Part 62, the NRC assumed that its mandate was to grant emergency access only to LLW that would otherwise be eligible for routine disposal at State or regional LLW disposal facilities according to the terms and conditions set out in the Act. More specifically, the NRC believes that only those LLWs designated by Section 3(a)(1) of the Act to be the disposal responsibility of the States could be eligible for a grant of emergency access disposal.

Under Subsection 3(a)(1)(A), the States are mandated to provide disposal for commercially generated LLW classified as A, B and C. They are not required to provide disposal for greater-than-Class-C wastes. Thus, the NRC would expect to deny any request for emergency access received for greater-than-Class-C waste. The same is true for the Federally generated LLW which is excluded from State disposal responsibility under section 3(a)(1)(B). Under that subsection, the States are assigned the responsibility for disposing of "LLW generated by the Federal government except that which is owned or generated by DOE, by the Navy as a

result of decommissioning of vessels, or as a result of any research, development, testing, or production of any atomic weapons." NRC does not expect to grant emergency access to any wastes that are exempted from State responsibility by section 3(a)(1)(B).

The NRC has no intentions of granting emergency access to LLW which are ineligible for LLW disposal under section 3(a)(1) of the Act. However, the Commission did not state its intentions in the proposed rule. The Commission assumed that it would be clear that the limitations established in the Act for routine LLW disposal would also apply for disposal resulting from a grant of emergency access. Apparently, that was not the case. To clarify the NRC's understanding and intent regarding the scope of wastes which the NRC considers to be potentially eligible for emergency access, the NRC added a new provision, (c) to § 62.1, "Purpose and Scope" of the final rule. The new provision states that "The regulations in this Part apply only to the LLW's which the States have disposal responsibility for pursuant to section 3(a)(1) of the Act." The NRC believes the addition of this clarification to the final rule should resolve any questions regarding a particular LLW's eligibility for emergency access consideration as well as the Commission's intended application of the final rule.

Reciprocal Access

Several of the commentors pointed out that the proposed rule omitted any reference to, or discussion of, section 6(f) of the Act, which addresses reciprocal access. Section 6(f) provides that the Regional Compact or State receiving the emergency access waste is entitled to reciprocal access at any subsequent facility that serves the Compact region or State in which the emergency access waste was generated. It further provides that the Regional Compact or State that receives the emergency access waste shall designate, for reciprocal access, "an equal volume of Low-level radioactive waste having similar characteristics to that provided emergency access."

Most of the States and Regional Compact Commissions who submitted comments on the proposed Part 62 indicated that reciprocal access should be addressed in the final rule. Most of the commentors who raised reciprocal access concerns believed the NRC should broker reciprocal access arrangements to ensure that reciprocal access will be available to a State or Compact whose LLW disposal facility is designated to receive emergency access

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waste. Several of them emphasized that the reciprocal access provision of the Act is a significant one that cannot be ignored in the NRC process of granting emergency access and designating a disposal facility. They stated that reciprocal access is of particular concern because a receiving Regional Compact or State has virtually no leverage or role to play in the emergency access process and a guarantee of reciprocal access would make the situation more acceptable. They indicated reciprocity is an integral part of section 6 and should be part of the rule.

One commentor indicated that even if the NRC did not wish to be involved in brokering the arrangements, it "must ensure that the right to reciprocal access is recognized and its implications are considered." The commentor indicated that a formal reciprocal access acknowledgement should be extracted from the Compact Region or State in which the emergency access waste was generated before any determination for granting emergency access is made. They indicated that such an acknowledgement should be required by the NRC as part of the contents of a request for emergency access (§ 62.12) and should include some indication of when the reciprocal access would be provided. The acknowledgement could then be included as part of the § 62.22 notification provided to the receiving state and, if appropriate, the Compact Commission."

The NRC recognizes that the commitment to reciprocal access is an integral part of the emergency access process, particularly for the States with the operating LLW disposal facilities which will be designated by NRC to receive emergency access waste. Staff considered reciprocal access during the development of the proposed rule. At that time, the NRC made a decision not to address reciprocal access as part of the rule on emergency access. As NRC staff read section 6(f), arranging for reciprocal access is an obligation between States/Compacts unrelated to the Commission's responsibility to protect public health and safety and the common defense and security and thus is outside the scope of NRC's responsibility to implement section 6. Thus, Staff believed it would be inappropriate for the NRC to assume the role of enforcing reciprocal access arrangements.

The NRC reconsidered its position on reciprocal access in light of the comments received on the proposed rule, but made no changes to the final rule. The NRC's mandate under section

6 is to grant requests for emergency access in order to protect the public health and safety and the common defense and security from a serious and immediate threat. If the NRC were to require a formal promise of reciprocal access as a necessary condition for considering a request for emergency access, under certain circumstances, actions necessary to protect the public health and safety could be delayed or compromised. Thus, the NRC continues to believe that an enforcement role regarding reciprocal access is inappropriate for the NRC. The Commission also believes that any role regarding reciprocal access, even of a brokering nature, could be in conflict with the Commission's basic mandate to make emergency access decisions. The NRC maintains that arranging for reciprocal access in response to grants of emergency access is the responsibility of the States and Compacts involved. The NRC believes that the promise of reciprocal access desired by the commentors could be initiated during the 15 day period required by the Act under section 6(g) for the receiving Compact Commission's approval of the NRC's LLW disposal facility designation.

As noted above, section 6(f) entitles any Compact or State that provides emergency access to a disposal facility within its borders to reciprocal access to any subsequently operating disposal facility that serves the State or compact region in which the LLW granted emergency access was generated. The Commission anticipates that any Compact or State that provides emergency access would take action to enforce this statutory right if the State or Compact in which the emergency access waste was generated does not accept an equal volume of low-level radioactive waste having similar characteristics at some future date.

Compact Approval of Grants of Emergency Access

Three of the commentors representing States or Compact Commissions indicated that the NRC had been remiss in not including a provision in the proposed rule which would require the NRC to seek approval for its decision to grant emergency access from the Compact Commission of the region in which the designated site is located. The commentors also wanted the rule to state that "no grant of emergency access under this Part shall be effective prior to 15 days from receipt of a request for approval from the Commission," in order to establish that Compact Commission approval would be necessary before the NRC's decision

would be considered final. The resolution of the issue raised by these comments is fundamental to the successful implementation of Congressional intent for the emergency access provision of the Act.

The basis for these comments is the language in section 6(g) of the Act. It states that "any grant of access under this Section shall be submitted to the Compact Commission for the region in which the designated disposal facility is located for such approval as may be required under the terms of its Compact." The commentors' interpretation of this provision is that Congress intended for the Compact Commission of the designated site to have the final say regarding the acceptance of emergency access wastes. They believe Congress intended that a receiving Compact Commission could reject the NRC's emergency access determination—essentially that Congress intended the compacts to have the power to veto the NRC's decision. The commentors wanted the NRC to acknowledge this interpretation of section 6(g) by incorporating a veto/approval provision in the final rule.

While the commentors were correct in noting that the proposed rule did not include a specific mechanism for implementing the section 6(g) provision of the Amendments Act, the NRC's position on this issue was addressed in Section III, Legislative History of the Supplementary Information portion of the proposed rule and is reiterated in the same section of the final.

Section 6(g) of the Act requires the NRC to notify the Compact Commission for the region in which the disposal facility is located of any NRC grant of access "for such approval as may be required under the terms of the Compact." However, section 6(g) also requires that the Compact Commission "shall act to approve emergency access not later than 15 days after receiving notification from the NRC." NRC believes the purpose of this provision is to (1) ensure that the Compact Commission is aware of the NRC's grant of emergency access and the terms of the grant; (2) allow the Compact Commission to implement any administrative procedures necessary to carry out the grant of access, and (3) ensure that the limitations on emergency access set forth in section 6(h) of the Act have not been exceeded.

Contrary to what several of the commentors believe, the NRC believes that disapproval is not really an option for the Regional Compact Commission in which the designated emergency access disposal facility would be

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located. This position is derived from the legislative history for both section 6 of the Act and the Omnibus Low-Level Radioactive Waste Interstate Compact Act which was passed by Congress as part of the Act. It is clear from the legislative history that the basic purpose of the section 6 emergency access provision is to ensure that LLW disposal sites which have denied disposal access to certain States under provisions of the Act will be made available to receive LLW in situations posing a serious and immediate threat to the public health and safety. A Compact Commission veto of the NRC's decision would frustrate the purpose of the emergency access provision and would be generally contrary to the legislative framework established in the Act. As emphasized in the House Committee on Interior and Insular Affairs Report on the Act, ratification of a Compact should be conditioned on the Compact's acting in accord with the provisions of the Act. If the Compact refuses to provide, under its own authorities, emergency access under section 6, Congressional ratification of that Compact would be null and void. (H.R. Rep. No. 314, 99th Cong., 1st Sess., pt. 1, at 2997 (1985).)

While disapproval may not be an option under the Act, clearly the Act intended the receiving Compact Commission to be fully informed regarding the emergency access decision made by the NRC. The Commission believes the Notification procedures under § 62.22 of the proposed rule provided the Compact Commission of the designated disposal facility with information consistent with the specifications in the Act. Section 62.22 of the proposed rule provided that the NRC will notify the Compact Commission of the State in which the designated disposal facility is located that emergency access is required. It further provides that "the notifications must set forth the reasons that emergency access was granted and specifically describe the low-level radioactive waste as to source, physical and radiological characteristics, and the minimum volume and duration (not to exceed 180 days) necessary to alleviate the immediate and serious threat to the public health and safety or the common defense and security.

In response to this comment, the NRC has made a change to the final rule. New language has been added to § 62.22 which states that the Commission will make notification of the final determination in writing to the appropriate Compact Commission "for such approval as is specified as necessary in Section 6(g) of the Act."

Applicable Terms and Conditions for Emergency Access

A number of the commentors expressed concern that LLW granted emergency access to disposal by the NRC should be required to meet any conditions of the site designated, as well as any fees, or taxes prescribed by that facility. Other commentors stated that LLWs granted emergency access disposal should not have to pay any special fees, beyond those specifically mandated by the Act. In both cases the commentors wanted assurances incorporated into the rule that in making emergency access site designation determinations, the NRC would protect both the health and safety interests and the financial interests of either the disposal facility designated to receive the LLW, or the person requesting emergency access. In addition, they wanted assurances included in the rule that the NRC would consider the fees, taxes, etc. in designating a site to receive any waste granted emergency access.

The NRC's response to these concerns is simple, and is much like the earlier discussion about the response to comments concerning which wastes are eligible for emergency access. As previously stated, the Commission believes that Congress intended emergency access only to be granted for waste which would routinely qualify for LLW disposal under the terms of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (the Act). To the Commission, it is quite clear from section 6(h) of the Act that Congress intended that the LLW granted emergency access would meet all of the general requirements and regulations of the disposal facility designated to receive the wastes by the NRC. Section 6(h) states that "No State shall be required to provide emergency access or reciprocal access to any regional disposal facility within its borders for low-level radioactive waste not meeting criteria established by the license or license agreement of such facility. * * *"

To ensure that the designated site is suitably matched to the LLW granted emergency access, the NRC included a provision in the proposed rule which stated that a LLW disposal site will be excluded from consideration to receive emergency access waste if the waste does not meet the criteria established by the license or licensee agreement for the facility § 62.26(b)(1). The license or licensee agreements incorporate the regulations and requirements that affect each particular facility. Taken with the other information in § 62.26, which the

NRC will consider before designating a site, the Commission believes § 62.26 as it appeared in the proposed rule adequately addresses the NRC's responsibility to designate a site which does not preclude "the implementation of any specific regulations, and requirements at the designated disposal facilities."

Regarding fees, taxes and other conditions that several commentors believed the NRC should consider in designating a site, the NRC believes that Congress intended for generators who are granted emergency access to pay all the normal LLW disposal fees as well as the additional fees or surcharges specifically applicable to emergency access waste and established under section 5 of the Act. However, the Commission does not agree that such information can or should be used by the NRC in making its site designation decision.

The Commission recognizes the importance of conditions to ensure the implementation of emergency access decisions once they are made by the Commission. In response to the comments, the NRC added a new Section "VIII" to the Supplementary Information portion of the final rule titled, "Terms and Conditions for Emergency Access Disposal." It sets out the responsibilities regarding the disposition of emergency access for both the generator of the LLW granted emergency access and the operating disposal site or sites which have been designated to receive the waste. The new section reaffirms the NRC's understanding of Congressional intent that whatever conditions or terms normally apply to LLW disposal apply for emergency access, except where specifically stated otherwise in the Act.

Conditions of Termination

Four of the commentors suggested the addition of a new section or subsection to the rule to address the conditions under which emergency access could be terminated. The Commission agrees that terms and conditions should be established in the final rule for termination of grants of emergency access. The NRC has added a new Subpart D to the final rule which incorporates some of the suggested conditions for termination as recommended by the commentors. The Subpart is entitled, "Termination of Emergency Access." This new Subpart D is discussed under Section VI.(D) of the Supplementary Information for this rule. It establishes that the Commission may terminate a grant of emergency access if an applicant has failed to

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comply with the conditions established by the NRC pursuant to this Part. It also establishes that the Commission may terminate a grant of emergency access if it determines that emergency access is no longer needed.

Response to Specific Request for Comments

In the proposed rule, the NRC specifically requested comments on certain parts or assumptions made by the NRC. Under Section VIII of the proposed rule, the NRC expressed an interest in receiving comments on—

(1) What scenarios are envisioned where emergency access would be required?

(2) What are the potential problems with the NRC's approach to determining an immediate and serious threat to the public health and safety?

(3) What are the potential problems with the arrangement proposed for making the determination of serious and immediate threat to the common defense and security?

(4) What are the potential difficulties with the proposed approach for designating the receiving site? and

(5) What should the NRC do if no site is found to be suitable for waste requiring emergency access?

Two of the commentors specifically addressed this request for comments, offering partial responses to some of the questions. One of the commentors offered possible scenarios for emergency access and both of the commentors suggested that a Federal facility should be developed to accommodate emergency access wastes. The comments did not reveal any new perspectives for the NRC to consider so the final rule was not affected by the comments received.

In the proposed rule, the NRC specifically requested comments on the initial regulatory flexibility analysis from small businesses, small organizations, and small jurisdictions in order to determine if the final regulations should be modified such that less stringent requirements could be imposed on small entities while still adequately protecting the public health and safety. None of the comments received on the proposed rule addressed the impact of the regulation on small entities or the adequacy of the NRC's regulatory flexibility analysis. As a result, it was not necessary to change the final rule to accommodate the special needs of small business.

X. Finding of No Significant Environmental Impact: Availability

This rule establishes criteria and procedures for a Commission

determination under section 6 of the Act that emergency access to an operating non-Federal LLW disposal facility is necessary to avert a serious and immediate threat to the public health and safety or the common defense and security. For the most part, the final rule is an administrative action which serves to codify the criteria and procedures in the Act. The adoption of such implementing criteria and procedures by promulgation of a final rule does not have an environmental effect.

Therefore, the Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required.

The environmental assessment forming the basis for this determination is contained in the regulatory analysis prepared for this regulation. The availability of the regulatory analysis is noted in Section XIII of this rule.

XI. Paperwork Reduction Act Statement

The final rule adds information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget Approval Number 3150-0143.

Public reporting burden for this collection of information is estimated to average 680 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records and Reports Management Branch, Division of Information Support Services/IRM, Office of Administration and Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Paperwork Reduction Project (3150-0143), Office of Management and Budget, Washington, DC 20503.

XII. Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection, copying for a fee, at the NRC Public Document Room, 2120 L Street NW,

Washington, DC 20555. Single copies of the analysis may be obtained from Janet Lambert, Nuclear Regulatory Commission, NLS-260, Washington, DC 20555, telephone (301) 492-3857.

XIII. Regulatory Flexibility Certification

NRC is using this final rule to implement the statutory requirements for granting emergency access to non-Federal or regional LLW disposal facilities under section 6 of the Act. Based upon the information available and in accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities.

The rule has the potential to affect any generator of LLW as well as any existing LLW disposal facility. None of the LLW disposal facilities would be considered to be a small entity. The generators of LLW are nuclear power plants, medical and academic facilities, industrial licensees, research and development facilities, radiopharmaceutical manufacturers, fuel fabrication facilities, and government licensees. Of these categories, all but the power plants, fuel fabrication facilities, and government licensees could potentially include small entities.

Although these categories may contain a "substantial number of small entities," the Commission does not believe that there will be a significant economic impact to these generators because the Commission does not anticipate that many generators will be affected by the rule. In order for the requirements of the rule to be imposed on a generator, the generator must initiate the action by requesting a grant of emergency access from NRC. This would occur only because the generator has been denied access to LLW disposal. The impact of the recordkeeping requirements on any affected licensees should be minimal since the information that must be provided if a generator requests emergency access would most likely be collected and assembled as part of any process to decide a course of action if necessary access to LLW disposal was not going to be available.

The Commission is required by statute to make emergency access determinations. Since a grant of emergency access is intended to correct the problems LLW generators may encounter because of lack of access to LLW disposal, the provision of emergency access will benefit any generator of LLW, including small entities.

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Establishing criteria and procedures for requesting and granting emergency access through a rule will also benefit small and large generators. This Part provides guidance to the generator on what information will be required for making requests for emergency access and provides an orderly framework for making those requests. Also, the rule will enable generators to better plan to avoid LLW disposal access problems, thus providing the certainty required for economic growth and development.

XIV. Backfit Statement

The provisions of 10 CFR 50.109 on Backfitting do not apply to this rulemaking because this regulation is not applicable to production and utilization facilities licensed under 10 CFR Part 50.

List of Subjects in 10 CFR Part 62

Administrative practice and procedure, Denial of access, Emergency access to low-level waste disposal, Low-level radioactive waste, Low-level radioactive waste policy amendments act of 1985, Low-level radioactive waste treatment and disposal, Nuclear materials, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, and the Low-Level Radioactive Waste Policy Amendments Act of 1985, the NRC is adopting a new 10 CFR Part 62.

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS
TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
70**

DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL
STATEMENTS OF CONSIDERATION

52 FR 1292
Published 1/12/87
Effective 2/11/87

*Bankruptcy Filing; Notification
Requirements*

Part 30 Statements of Consideration

52 FR 8225
Published 3/17/87
Effective 7/14/87

*Licenses and Radiation Safety
Requirements for Well Logging*

See Part 39 Statements of Consideration

52 FR 9649
Published 3/26/87
Effective 3/25/87

*Implementation of the Convention on
the Physical Protection of Nuclear
Material*

See Part 73 Statements of Consideration

52 FR 10033
Published 3/30/87
Effective 4/29/87

*Material Control and Accounting
Requirements for Facilities Licensed
To Possess and Use Formula
Quantities of Strategic Special Nuclear
Material*

See Part 74 Statements of Consideration

52 FR 19303
Published 5/22/87
Effective 6/22/87

*Reporting of Special Nuclear Material
Physical Inventory Summary Results*

See Part 74 Statements of Consideration

52 FR 21651
Published 6/9/87
Effective 10/8/87

10 CFR Parts 70, 72, 73, and 74

**Changes to Safeguards Reporting
Requirements**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for the reporting of safeguards events. These amendments clarify the reporting requirements for NRC licensees and will improve the NRC safeguards event data base by requiring more uniform safeguards event reports. Licensees who are affected include power and non-power reactors, fuel cycle facilities, and transporters, importers, and exporters of special nuclear material. The NRC uses the reported information to assure safety during safeguards-related emergencies and to identify and characterize generic and facility specific precursors that can be utilized to preempt duplicative or similar events in the future. The benefits derived from this action are the elimination of unnecessary reports without degradation to safeguards, the extension of the period for written report submittals and an improved data analysis system to provide industry feedback for improving safeguards systems.

EFFECTIVE DATE: October 8, 1987.

FOR FURTHER INFORMATION CONTACT:
Loren Bush, Office of Nuclear Reactor
Regulation, or Priscilla A. Dwyer, Office
of Nuclear Material Safety and
Safeguards, U.S. Nuclear Regulatory
Commission, Washington, DC 20555,
Telephone (301) 492-8080, or (301) 427-
4773, respectively.

SUPPLEMENTARY INFORMATION:

Background

10 CFR 73.71 establishes an event reporting program to inform the Commission of safeguards events to permit timely and appropriate response to incidents. Safeguards events include actual or attempted theft of special nuclear material (SNM); actual or attempted acts or events which interrupt normal operations at power reactors due to unauthorized use of or tampering with machinery, components, or controls;

certain threats made against facilities possessing SNM; and safeguards system failures impacting the effectiveness of the system. The data from this reporting program further allows the Commission to identify and characterize generic and facility specific precursors to safeguards events. Since the issuance of 10 CFR 73.71 (47 FR 11511), the NRC staff has found that the requirements are frequently misinterpreted, that written follow-up reports submitted pursuant to the regulation lack uniformity, and that within these reports insufficient data is reported for NRC analysis.

For these reasons, on August 27, 1985, the NRC published proposed amendments in the Federal Register (50 FR 34708) to clarify and simplify the requirements of 10 CFR 73.71; conforming amendments to 10 CFR 70.52, 72.52, 73.67, and 74.71 were also proposed at that time. The comment period which was to have ended on November 27, 1985 was extended to December 31, 1985 to permit sufficient time for review of companion guidance issued after the proposed rule publication.

Summary of Public Comment

Comments were received from twenty-six respondents comprised of power reactor licensees, one fuel processing licensee, three industry groups and one private citizen. Copies of comment letters are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC.

The proposed amendments have been modified in response to comments received, as appropriate, and are being published in final form, to become effective 120 days after publication of the notice. A summary of the public comments, along with their resolution, follows. The comments have been placed in the following categories:

1. Safeguards log.
2. Reporting of interruption of normal operations at power reactors.
3. Reporting of unauthorized entry through required barrier.
4. Administrative issues.
5. Clarifications needed.
6. Miscellaneous issues.

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1. *Safeguards log.* The majority of respondents commented on some aspect of the safeguards log. These comments have been divided into the following issues that the respondents raised:

- a. Items to be logged.
- b. Maintenance and submittal of stand-alone log.
- c. Additional discussion of burden imposed by log.

(a) *Items to be logged.* Respondents indicated that the provision to log any other failure of a safeguards system " * * * not included in paragraph II(a) * * * if the failure degrades the effectiveness of the system * * * " would require the logging of a great deal of insignificant data. Respondents suggested that unless the provision was made clearer, substantial disagreement could exist between licensees and NRC inspectors over what items are required to be logged. The provision may be subject to broad interpretation because of its open-ended nature. For this reason this provision has been revised to read: "Any other threatened, attempted, or committed act not previously defined in Appendix G with the potential for reducing the effectiveness of the safeguards system below that committed to in a licensed physical security or contingency plan or the actual condition of such reduction in effectiveness." The supporting guidance for the rule has been revised accordingly in response to these revisions.

(b) *Maintenance and submittal of stand-alone log.* The majority of commenters including two utility groups indicated that the maintenance and submittal of a stand-alone log was a large administrative burden on the licensee implemented for the convenience of the NRC. The recommendation was made that this requirement be deleted in its entirety. Justification for this recommendation included the opinion that the events to be logged are insignificant and their logging will not increase safeguards effectiveness, submittal of the log will require increased review of the log by licensee management to assure that events required to be logged are in fact logged, and records of the events to be logged are presently maintained onsite and readily available for NRC inspection.

In response to these comments, it is believed this provision has been subject to much misinterpretation. The proposed reporting and recordkeeping requirements are intended to keep NRC informed concerning the degradation/failure or attempted/actual penetration of each licensee's physical security system as well as credible threats made against the licensee's facility. NRC staff intends to use the reported/recorded safeguards information to assure that appropriate action is taken by the

licensee to address physical security degradation/failure and/or threats against the facility. Further, such information is used to identify and characterize generic and facility specific precursor information that could be utilized to preempt duplicative or similar events in the future. These considerations support the need for the reporting of these types of events. Regarding the maintenance of a stand-alone log, it is noted that this is not a new requirement and that under the previous 10 CFR 73.71(c), licensees were required to maintain a separate log to record events reportable under § 73.71. Furthermore, examples of the types of events other than those required by 10 CFR 73.71(c) that need be "recorded" under the previous regulation are identified in Regulatory Guide 5.62, Reporting of Safeguards Events. (Copies of this Regulatory Guide are available for inspection or copying for a fee at 1717 H Street, NW., Washington, DC.) Comparison of this information with the events to be logged under the proposed regulation indicates an overall reduction in the burden to licensees resulting from events to be reported. This is based on the fact that the majority of events previously required to be reported within 24 hours (with a follow-up written report) have been picked up as log entries under the revised regulation. As a log entry, the follow-up written report need not be submitted, substantially reducing the overall burden. Some commenters interpreted the increased number of examples in the supporting guidance for the proposed rule as meaning more events were required to be reported. The staff notes at this time that the examples in the original regulatory guide were never intended to be all-inclusive and that the additional examples have been provided to aid the licensee in understanding the intent of the regulation. Commenters also indicated that not all events required to be logged under the present requirement are logged in one log, but a number of logs, i.e., maintenance log, alarm station log, etc. It is the opinion of these commenters that revising their procedures to maintain one log, as opposed to multiple logs, will greatly increase their burden. It is anticipated that the revised regulation will reduce the burden to licensees. Accordingly, no revision has been made to the revised rule in the area of maintenance of a stand-alone log.

Regarding the submittal of the stand-alone log to the NRC requiring additional review time by licensee management, commenters are reminded that the requirement to maintain a log, regardless of its submittal to the NRC, carries with it the requirement for correct and accurate entries. The concern over review for accuracy

associated with the act of submitting the log to the NRC should also be applied to the maintenance of a log onsite for review by inspectors. Hence, with respect to review time, there is no difference, from a regulatory standpoint, in the level of burden imposed between a log maintained onsite versus one submitted to the NRC. It is noted that the log submitted to the NRC does not have to be typewritten as long as it is legible. The supporting guidance for the rule has been revised to reflect this and to include examples of sample log entries for clarification regarding length and content.

Finally, regarding the comment that the log need not be submitted to NRC Headquarters because records are available for onsite inspection, the staff believes that with the justification of a stand-alone log established, the onerous nature of the log submittal to the NRC, as noted in comments, is greatly lessened. In review, this is based upon no requirement to submit a *typed* or original log (xeroxed is acceptable as long as it is legible) and no additional requirement imposed on the accuracy of a log submitted to the NRC versus one maintained onsite.

(c) *Additional discussion of burden imposed by log.* As previously discussed, the overall burden on licensees for the reporting/logging of safeguards events is in fact reduced by the proposed requirement. However, based upon the number of comments received on this issue, the Regulatory Analysis for this rulemaking has been thoroughly reviewed and revised, as appropriate, to assure that respondents' concerns have been considered.

2. *Reporting of interruption of normal operations at power reactors.* The proposed regulation under § 73.71(b) and I(a)(3) of Appendix G to Part 73 requires that actual or attempted acts or events which cause or could cause interruption of normal operation of a licensed nuclear power reactor through the unauthorized use of its machinery, components, or controls be reported within one hour to the NRC. Various comments were received from respondents on this issue. The majority of comments indicated that some clarification of the provision is needed. Specific suggestions included limiting the provision to deliberate, intentional, or malicious acts and focusing the provision on an actual act of sabotage rather than interruption of normal operation. A few comments indicated that the interruption of normal operation should not be considered a safeguards event and that such events are already reportable under Part 50 requirements. Finally, specific definitions for the terms "tampering" and "interruption of normal operation" were requested.

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The inclusion of this provision within the reporting requirements for safeguards events was prompted by amendments in 1981 to the Atomic Energy Act of 1954, as amended, (the Act). At that time a new subsection (section 236b) was added which subjects to criminal penalty any person who intentionally or willfully causes or attempts to cause an interruption of the normal operation of specified nuclear facilities through the unauthorized use of or tampering with the machinery, components, or controls for such facilities. The Federal Bureau of Investigation (FBI), as the Federal agency charged with the criminal investigation of sabotage at nuclear reactors, has revised its internal policy on the definition of sabotage to be consistent with the Act. The revision to 10 CFR 73.71 is necessary to bring NRC regulations into line with the Act. Because the question of intent cannot normally be determined in a one hour time frame, the term "willfully" and "intentionally" are not included in the reporting requirements.

A proper application of the term "interruption of normal operations" will put the reporting of these events in proper perspective. The legislative history for the aforementioned amendments to the Act states that the term refers to the cessation of actual production, utilization, or storage operations which, if accomplished, would result in substantial economic harm or cost to the licensee. For the purpose of this rulemaking, this term will be used only to refer to utilization operations. The term sabotage is not specifically used within the regulation to assure that the actual act is reported while allowing the FBI to investigate whether a violation of law has occurred. In addition, the word "tampering", when used in conjunction with this reporting requirement only, means altering for improper purposes or in an improper manner. It is noted that all terms or phrases clarified as a result of comment analysis for the proposed rule are included in a glossary added to the supporting guidance for this rule, Regulatory Guide 5.62, "Reporting of Safeguards Events," Rev. 1. Finally regarding duplication of reporting with Part 50 requirements, the revisions to 10 CFR 73.71 explicitly state that duplicate reports are not required for events that are also reportable under 10 CFR 50.72 and 50.73.

• *3. Reporting of unauthorized entry through a required barrier.* Sections 73.71(b)(1) and I(c) of Appendix G to Part 73 of the proposed regulation required any unauthorized entry through a required barrier (whether or not the event is properly compensated) to be reported to the NRC within one hour of

discovery. Comments on this issue questioned the need for reporting of all unauthorized entries especially those by authorized individuals and indicated that unauthorized entries due to procedural or unintentional errors need not be reported especially when the event is properly compensated. Specific definitions for the terms "unauthorized entry" and "required barriers" were requested.

The staff agrees in part with these comments and recognizes the fact that some unauthorized entries through a required barrier may not involve malevolent intent particularly those involving "tailgating" by individuals into areas to which they are authorized unescorted access. Conversely, however, the staff believes it prudent and appropriate that malevolent intent be assumed if an individual makes an actual entry into an area to which he or she is not authorized unescorted access. For these reasons, this provision has been revised to require one-hour reporting of: "Any actual entry of an unauthorized person into a protected area, a material access area, controlled access area, vital area, or transport." An unauthorized person is defined as an unescorted individual in an area to which the individual is not granted unescorted access. All other acts or events involving invalid or incorrect entry procedures should be logged. To clarify this issue, additional pertinent examples have been added to the rule's supporting guidance. In addition, the intent of proposing to require the reporting of any unauthorized entry through a required barrier was also to require the reporting of the introduction or attempted introduction of contraband into the facility. While § I(a) of Appendix G could also be cited as requiring the reporting of such an event, the staff has added a separate provision to make it clear such events are required to be reported within one hour.

4. *Administrative issues.* The proposed regulation required the use of the Licensee Event Report (LER) form, NRC Form 366, for the submittal of follow-up written reports by power reactor licensees. Public comment, including the comment of one utility group, identified problems with the use of these forms and recommended the use of letter format for report submittal as required for all but power reactor licensees. Commenters opposed the use of the form by noting that the form was prepared for the reporting of safety events under Part 50 requirements and, hence, did not quite "fit" the planned usage under 10 CFR 73.71. From a philosophical standpoint, commenters felt the use of a common form blurred the important distinction between safety and safeguards. The purpose in

requiring the use of this common form was to simplify report submittal. It is believed that the form has been designed with enough flexibility to accommodate the reporting of both safety and safeguards events. Furthermore, use of a common form will simplify administrative procedures. For these reasons, no change has been made to the regulation regarding use of the LER form. However, guidance on use of the form by power reactor licensees for the reporting of safeguards events has been added to the rule's supporting guidance.

A few comments were received which requested the one-hour reporting requirement be extended to 4 or 24 hours and the requirement to log an event within 24 hours of its discovery be extended to 72 hours. No revision to the proposed rule has been made in response to these comments. In the case of extending the one-hour limit, the proposed rule represents appropriate revisions to the present requirement that assure only those events requiring a one-hour report are in fact required to be reported within one hour. In the case of extending the 24-hour limit, a 24-hour period to document an event in a log is more than sufficient time and already represents a relaxation over immediate logging.

Also in the area of reporting periods, commenters, including one utility group, commented that the initiation of the time period for reporting should be tied to discovery by a member of the security organization, not just by any licensee employee, and that the security organization should make the determination that a safeguards event has occurred, again, not just any employee. The staff agrees that the determination for reporting an event should be made by onsite security management or equivalent. This information has been added to the rule's supporting guidance. It is believed, however, that the discovery of an event should not be limited to discovery by a member of the security organization. All regular site employees should receive training by the security organization to foster an awareness of site security. In this regard, site employees should be briefed on their responsibility to immediately notify site security of safeguards anomalies. The staff, therefore, has made no revision to the proposed regulation in response to this particular comment.

Commenters, including one utility group, requested that the required record retention period of three years be revised downward to one year. In this regard, there is an ongoing NRC rulemaking which will standardize all record retention periods to 3 years, 5 years, 10 years, or life in order to ease

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the burden on affected licensees who are subject to diverse reporting and recordkeeping requirements. The three-year period required in 10 CFR 73.71 is consistent with this policy. As this policy evolves, any revisions to the standardized retention periods would be reflected in a conforming amendment to § 73.71.

Respondents further expressed the view that immediate reports should be made to the appropriate NRC Regional Office, not the Operations Center and that the procedure for revising written reports, i.e., complete report resubmittal, was overburdensome and unnecessary. Justification for changing the designated report recipient to the Region included the fact that immediate response is provided by the Region, not NRC Headquarters, and that current practice is to notify a Regional Office during day-time work duty hours and to notify the Operations Center during night off-duty hours.

The NRC purpose in requiring reports to be made to the Operations Center, as required under present § 73.71 requirements, is to assure safety through appropriate action taken in response to emergencies or other acts or events inimical to the public health and safety. Through pre-established procedures, this centralized point can notify designated personnel for action as appropriate. It is also believed that simplified procedures, such as use of one centralized point for the reporting of significant events (both safety and safeguards), will assist licensees in responding to continuing developments if an actual emergency progresses for some time. Accordingly, this provision remains as required under the present regulation. Regarding the submittal of a revised report, requiring full report resubmittal assists in standardizing the procedures for the reporting of safety and safeguards events. For safety-related events, these procedures are described in NUREG-1022, Supplement No. 1, "Licensee Event Report System" which states:

The revised LER must stand alone. In addition, it would be very helpful if the licensee would indicate in the text on the LER form the revised or supplementary information. The revised or supplementary information could be noted in a manner analogous to amendments for FSARs by placing a vertical line in the margin.

For this reason, no changes have been made in response to this comment.

Finally, the staff has re-evaluated the need to provide a copy of the safeguards log to "... if applicable, the appropriate NRC Resident Inspector ..." and has determined this is an unnecessary burden to licensees and inconsistent with the goal of consistency with safety-event reporting

procedures. Accordingly, this requirement has been deleted.

5. *Clarifications needed.* Public comment requested clarification of a number of terms and expressions used in the guidance for the proposed regulation. Some of these have been clarified under the discussion of other comment issues. The remaining terms are clarified here. All terms or expressions discussed as part of public comment analysis for this rule are included in a glossary added to the rule's supporting guidance, Regulatory Guide 5.62, Reporting of Safeguards Events, Rev. 1.

a. "Safeguards system." This term covers the equipment, personnel, and procedures that comprise the physical protection program necessary to meet Part 73 requirements.

b. "Any failure of a safeguards system or the discovered non-inherent vulnerability * * * etc." In an attempt to clarify this phrase it has been revised to refer to: "Any failure, degradation, or discovered vulnerability * * *" and to delete the proposed definition of compensatory measures. Rather than add an additional definition for compensatory measures to the Federal Code (which could be confusing), the existing definition found under 10 CFR 73.46(g)(5) and 73.55(g)(1) will be used. This definition will be referenced in the supporting guidance for this rulemaking. For further clarification, descriptions of acceptable compensatory measures have been added to the supporting guidance.

c. "Credible" threat. A threat should be considered credible when (1) physical evidence supporting the threat exists, (2) information independent from the actual threat message exists which supports the threat, or (3) a specific group or organization claims responsibility for the threat.

d. "Significant physical damage" (as applied to a power reactor, a facility possessing SSNM or its equipment, carrier equipment transporting nuclear fuel or spent nuclear fuel, or to the nuclear fuel or spent nuclear fuel a facility or carrier possesses). This term covers physical damage to the extent that the facility, equipment, transport, or fuel cannot perform its normal function.

e. "Lost" versus "unaccounted for" re: transportation of material. The term "lost" covers material that is no longer in the possession of the party authorized to possess it during a specific time period and a search for the material verifies this. "Unaccounted for" refers to material in transit which has not arrived at its delivery point four hours or more after the estimated arrival time. However, a search has not confirmed the material to be lost.

f. "Theft of SNM." The term refers to

the unauthorized taking of SNM for unauthorized use.

g. "Diversion of SNM." This term refers to the unauthorized movement of SNM by individuals authorized access to or control over the material.

h. "Loss of SNM." This term refers to (1) a failure to measure or account for material, authorized to be possessed by the licensee, by the material control and accounting system approved for the facility and not confirmed stolen or diverted or (2) an accidental (i.e. unplanned) offsite release or dispersal of SNM known or suspected to be 10 times greater than normal operating losses for the time frame in question whether or not the release is measured. The term "loss" implies that a search has been conducted to confirm the material loss. For fixed sites, this search should be conducted within the one-hour time frame of reportability.

i. "Safeguards Event Log." This term refers to a compilation of log entries for the events described under section II of Appendix G to 10 CFR Part 73. Entries must include date and time of event, summary description of event, and action taken. For repeated events, the date and time should be recorded; however, the summary and action taken need only reference the initial event of the series of identical events. An active "safeguards event log" is not required to be maintained in one location onsite. Its format may be typed or handwritten as long as it is legible and reproducible. Entries in a "safeguards event log" submitted to the NRC need not be in time sequential order.

6. *Miscellaneous issues.* This rulemaking grants a portion of a petition for rulemaking assigned Docket No. PRM 50-36 from the Nuclear Utility Backfitting and Reform Group (NUBARG). This rule responds specifically to section VI of the petition, Reporting Requirements Associated with 10 CFR 73.71. In this section the petitioner suggests that the regulation be amended to provide for written report submittal by the licensee within 30 days of initial notification rather than within 15 days. According to the petitioner, this would allow a licensee's staff more time during the critical period immediately following an event to devote to the resolution of the problem and would minimize interference with daily operation. The NRC has agreed with this suggestion in the past and included this revision within the final rule. Comments received on this issue universally support the extension of the time period for written report submittal. NUBARG acknowledged the action and requested a prompt response from the NRC on the remaining items of the petition.

Comments received from one low enriched uranium fuel fabrication

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licensee noted that its NRC-approved physical security plan specifically identifies the reporting requirements for shipments that have not reached their destination by the estimated time of arrival. This commenter requested that the requirements for licensees subject to § 73.67 not be changed because these changes would produce no benefit but would result in added costs. The staff has made a thorough review of this issue, including inspection of reporting commitments in the subject licensee's physical security plan and finds no conflict. A "lost" shipment carries with it the understanding that a search or trace investigation has determined the shipment to be verified lost (see paragraph 5e above). A shipment may be "unaccounted for" for up to 4 hours before it is determined "lost." There is no difference in a reporting period described as "within one hour of discovery of a loss" versus "within one hour of obtaining results of a trace investigation."

Finally, during the course of public comment analysis, a question arose whether licensees would be required to submit physical security plan amendments to conform with this revised regulation. The revised regulation supersedes the previous § 73.71 and any previous security plan commitments dealing with reporting of safeguards events. Licensees are not required to submit plan changes in response to the new regulation; however, those licensees who have paraphrased the previous 10 CFR 73.71 in their security plans should revise their plans to delete previous commitments in this area; these plan revisions may be submitted under the provisions of 10 CFR 50.54(p). It is noted that based upon the expected reduction in burden to affected NRC licensees with no resultant safeguards degradation, this regulation has been approved as a generic backfit and a backfit analysis is incorporated within this notice.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval numbers 3150-009, 3150-0132, 3150-0002, and 3150-0123.

Regulatory Analysis

The NRC staff has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 1717 H Street, NW., Washington, DC 20555. Single copies of the analysis may be obtained from Priscilla A. Dwyer, Safeguards Reactor Regulatory Requirements Section, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 427-4773.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this revised rule does not have a significant economic impact on a substantial number of small entities and will result in a reduction in burden to affected licensees. Some transporters, importers, and exporters of special nuclear material (SNM) and spent fuel will be affected by this rule. Each year out of approximately 600 reported events, about 3 come from this group which includes small entities. The rule also affects licensees who operate nuclear power plants and fuel facilities under 10 CFR Parts 50 and 73. The companies that own these plants and facilities do not fall within the scope of the definition of "small entities" set forth in § 605(b) of the Regulatory Flexibility Act of 1980, or within the definition of Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121.

Backfit Analysis

As required by 10 CFR 50.109 (50 FR 38097), the NRC staff has completed a backfit analysis for this final rule. The staff has determined, based on this analysis, that backfitting to comply with the requirements of this final rule is justified because imposition of these requirements will result in a substantial increase in the overall protection of the public health and safety or the common defense and security and direct and indirect costs are justified in view of the increase in protection. The backfit analysis, which includes a summary regulatory analysis, follows.

I. Summary Regulatory Analysis

1. *Objective.* In general, the objective of this rule is to clarify and simplify the reporting of safeguard events to the NRC by licensees. Safeguards events include actual or attempted theft of special nuclear material (SNM), actual or attempted acts or events which interrupt normal operations at power reactors due

to unauthorized use of or tampering with machinery, components or controls, certain threats made against facilities possessing SNM, and safeguards system failures impacting the effectiveness of the system. The reporting of this data to the NRC is necessary to assure safety during safeguards-related emergencies and to allow the Commission to identify and characterize generic and facility-specific precursors to certain safeguards events. Since the original issuance of § 73.71, the staff has found the requirements are frequently misinterpreted, that written follow-up reports submitted pursuant to the regulation lack uniformity and that within these reports insufficient data is reported for NRC analysis.

Specifically, these revisions will: (1) Clarify to licensees the safeguards events that must be reported, (2) extend the period of time for submittal of licensee written reports, (3) assure standardized and sufficient report-making to assist NRC data evaluation, (4) eliminate telephonic notification and written reporting deemed unnecessary by the staff, and (5) assure a consistent and comparable level of reporting for safety and safeguards events.

2. *Description of activity.* At present, licensees are required to report certain events within one hour or 24 hours of their occurrence with submittal of written follow-up reports within 5 or 15 days depending upon the event. All events reportable are required to be maintained in a separate log onsite, while other events are simply required to be recorded. The specific events reported within these time periods or logged are described by such broad phrases as "potential loss," "moderate loss of effectiveness" and "major loss of effectiveness."

The revisions to § 73.71 require events to be either reported within one hour or logged with the log submitted to the NRC on a quarterly basis. Events reported within one hour are required to be followed up by a written report within 30 days. In describing the events to be reported, an attempt has been made to describe only those types of events actually requiring reporting and to assure that categorization of events which may warrant Federal involvement is made by appropriate Federal agencies, not the licensee.

The net results of the final regulations are to (1) eliminate the present 24-hour reporting requirement (most items presently reportable within 24 hours will be logged, only, under the final rule), (2) eliminate the requirement to log items reportable to the NRC within one hour, (3) clarify and simplify the descriptions of events to be reported or logged including clarification of information to be reported, and (4) require the submittal of a log of safeguards events to the NRC on a quarterly basis.

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Since licensees are currently required to immediately report or log certain safeguards events, the major new activity required of the licensee under this amendment is submittal of the quarterly log to the NRC.

3. *Potential change in risk to the public from accidental offsite release of radioactive material.* An improved system for the reporting of safeguards events, which might or in fact do lead to a radioactive release, e.g., radiological sabotage, could permit more timely and effective response to the incident. This could have the effect of decreasing the risk to public from an offsite release by allowing more timely mitigation of the event or more timely implementation of necessary contingency action.

4. *Potential impact on radiological exposure of facility employees.* To the extent that an improved reporting system will permit more timely mitigation of a safeguards event involving a radioactive release, the potential impact of radiological exposure on facility employees will be reduced. Otherwise, with respect to radiological exposure, there is no impact on facility employees.

5. *Installation and continuing costs.*

Current Annual Licensee Operational Cost	\$15k/site.
Revised Annual Licensee Operational Cost	6k/site.

Decreased Cost Resulting from Revised Regulation.	9k/site.
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6. *Potential safety impact of changes in plant or operational complexity.*
None.

7. *Estimated resource burden on the NRC.*

Current NRC Operational Cost	\$126k/all sites.
Revised NRC Operational Cost	266k/all sites.

Increase Cost to NRC Resulting from Revised Regulation (due to increased time needed to analyze quarterly submitted log).	140k/all sites.
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8. *Potential impact of differences in facility type or age.* No potential impact is noted of differences in facility type or age on the relevance or practicability of implementing this rule.

9. The rule is final.

II. Justification

1. *Increased protection of the public health and safety.* The staff believes that issuance of this final rule will improve the implementation of reporting of safeguards events requirements due to increased clarity. Further, it will improve the ability of the NRC to uncover generic precursors to events or defects in the safeguards systems used to protect the plant. Clarifying and simplifying procedures for reporting can have a significant impact on the timeliness and effectiveness of

establishing the NRC-licensee interface or other possibly necessary Agency interfaces (e.g., with the FBI) during actual safeguards emergencies. This results in increased protection to the public health and safety because it facilitates a timely, coordinated response to safeguards emergencies by the NRC, licensees, and other Agencies, as appropriate. Improving the ability of the NRC staff to uncover generic precursors or defects provides the NRC with an improved capability to initiate corrective action, if needed, prior to a vulnerability having a detrimental effect on the public health and safety. This action will, thus, also improve the protection of the public health and safety.

2. *Cost implications.* Implementation costs are expected to be negligible because neither security plan amendments nor their review will be required. Annual operating costs are anticipated to decrease for industry, from \$15k to \$6k per site, because of a reduced reporting burden, and increase for the NRC, from \$126k to \$266k for all sites, because of the increased time needed to review quarterly submitted logs.

3. *Priority and scheduling.* Based upon the resulting substantial increase in the overall protection of the public health and safety, as discussed above, this backfit is considered to be a high priority. The proposed changes do not affect the schedules of other regulatory activities on-going at nuclear power plants.

4. *Findings.* The NRC staff finds that issuance of this final rule will result in a substantial increase in the overall protection of the public health and safety and direct and indirect costs are justified in view of the increase in protection.

List of Subjects

10 CFR Part 70

Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 73

Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and

recordkeeping requirements, Security measures.

10 CFR Part 74

Accounting, Material control and accounting, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Parts 70, 72, 73 and 74.

52 FR 22416

Published 6/11/87

10 CFR Part 70

Material Control and Accounting Requirements for Facilities Licensed To Possess and Use Formula Quantities of Strategic Special Nuclear Material

Correction

In rule document 87-6945 beginning on page 10033 in the issue of Monday, March 30, 1987, make the following correction:

§ 70.32 [Corrected]

On page 10038, in the first column, in § 70.32(c)(1)(i), in the sixth line, "74.41(c)(1)" should read "74.51(c)(1)".

52 FR 31601

Published 8/21/87

Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

52 FR 38391

Published 10/16/87

Effective 12/1/87

Regional Nuclear Materials Licensing for the United States Navy

See Part 30 Statements of Consideration

52 FR 48092

Published 12/18/87

Effective 12/18/87

Domestic Licensing of Byproduct, Source, and Special Nuclear Material; Revision of List of Non-Agreement States in Region III

See Part 30 Statements of Consideration

52 FR 49362

Published 12/31/87

Effective 2/1/88

Completeness and Accuracy of Information

See Part 2 Statements of Consideration

PART 70 • STATEMENTS OF CONSIDERATION

53 FR 3861
Published 2/10/88
Effective 2/10/88

Change of Region 1 Address

See Part 1 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI
and GPA

See Part 30 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 24018
Published 6/27/88
Effective 7/27/88

General Requirements for
Decommissioning Nuclear Facilities

See Part 30 Statements of Consideration

53 FR 26591
Published 7/14/88
Effective 7/27/88

10 CFR Part 70

**General Requirements for
Decommissioning Nuclear Facilities;
Correction**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule; correction.

SUMMARY: This document corrects a
final rule appearing in the **Federal
Register** on June 27, 1988 (53 FR 24018)
which establishes technical and
financial criteria for decommissioning
licensed nuclear facilities. This action is
necessary to insert a date that was
inadvertently omitted from the final rule.

EFFECTIVE DATE: July 27, 1988.

FOR FURTHER INFORMATION CONTACT:
K. Steyer, C. Feldman, or F. Cardile,
Office of Nuclear Regulatory Research,
U.S. Nuclear Regulatory Commission,
Washington, DC 20555, Telephone: 301-
492-3824.

53 FR 31651
Published 8/19/88
Effective 9/19/88

*Licensing Requirements for the
Independent Storage of Spent Nuclear
Fuel and High-Level Radioactive
Waste*

See Part 72 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

*Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes*

See Part 1 Statements of Consideration

53 FR 45447
Published 11/10/88
Effective 12/12/88.

*Safeguards Requirements for Fuel
Facilities Possessing Formula
Quantities of Strategic Special Nuclear
Material*

Part 2 Statements of Consideration

54 FR 6876
Published 2/15/89
Effective 2/15/89

*Centralization of Material Control
and Accounting Licensing and
Inspection Activities for
Non-Reactor Facilities*

See Part 74 Statements of Consideration

54 FR 14051
Published 4/7/89
Effective 4/7/90

*Emergency Preparedness for Fuel
Cycle and Other Radioactive Material
Licensees*

See Part 30 Statements of Consideration

55 FR 5978
Published 2/21/90.
Effective 2/21/90

*Centralization of Material Control and
Accounting Licensing and Inspection
Activities for Nonreactor Facilities*

See Part 74 Statements of Consideration

55 FR 10397
Published 3/21/90.
Effective 4/20/90

*Preserving the Free Flow of
Information to the Commission*

See Part 30 Statements of Consideration

56 FR 23360
Published 5/21/91
Effective 6/20/91

*Standards for Protection Against
Radiation*

See Part 20 Statements of Consideration

56 FR 40664
Published 8/15/91
Effective 9/16/91

*Revisions to Procedures to Issue
Orders; Deliberate Misconduct by
Unlicensed Persons*

See Part 2 Statements of
Consideration

56 FR 40757
Published 8/16/91
Effective 10/15/91

Notifications of Incidents

See Part 30 Statements of
Consideration

56 FR 55991
Published 10/31/91
Effective 12/2/91

*Material Control and Accounting
Requirements for Uranium Enrichment
Facilities Producing Special Nuclear
Material of Low Strategic Significance*

See Part 74 Statements of
Consideration

56 FR 61352
Published 12/3/91
Effective 6/20/91

*Standards for Protection Against
Radiation; Correction*

See Part 20 Statements of
Consideration

56 FR 64980
Published 12/13/91
Effective 10/15/91

Notifications of Incidents

See Part 30 Statements of
Consideration

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 33426
Published 7/29/92
Effective 8/28/92

*Minor Amendments to the Physical
Protection Requirements*

See Part 73 Statements of Consideration

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57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

58 FR 64110
Published 12/6/93
Effective 12/13/93

*NRC Region III Telephone Number and
Address Change*

See Part 20 Statements of Consideration

59 FR 36026
Published 7/15/94
Effective 8/15/94

*Timeliness in Decommissioning of
Materials Facilities*

See Part 30 Statements of Consideration

58 FR 7715
Published 2/9/93
Effective 7/1/93

*Licenses and Radiation Safety
Requirements for Irradiators*

See Part 36 Statements of Consideration

58 FR 67657
Published 12/22/93
Effective 1/1/94

*Standards for Protection Against
Radiation; Removal of Expired Material*

See Part 20 Statements of Consideration

59 FR 48944
Published 9/23/94
Effective 10/24/94

*Certification of Gaseous Diffusion
Plants*

See Part 76 Statements of Consideration

58 FR 31467
Published 6/3/93
Effective 11/30/93

*Fitness-for-Duty Requirements for
Licensees Authorized To Possess,
Use, or Transport Formula Quantities
of Strategic Special Nuclear Material*

See Part 26 Statements of Consideration

58 FR 68726
Published 12/29/93
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism*

See Part 30 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

58 FR 39628
Published 7/26/93
Effective 10/25/93

*Decommissioning Recordkeeping and
License Termination: Documentation
Additions*

See Part 30 Statements of Consideration

59 FR 1618
Published 1/12/94
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism;
Correction*

See Part 30 Statements of Consideration

60 FR 38235
Published 7/26/95
Effective 11/24/95

*Clarification of Decommissioning
Funding Requirements*

See Part 30 Statements of Consideration

58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

59 FR 14085
Published 3/25/94
Effective 5/31/94

*NRC Operations Center Commercial
Telephone Number Change*

See Part 20 Statements of Consideration

60 FR 53505
Published 10/16/95
Effective 11/15/95

*Physical Security Plan Format
Changes*

See Part 50 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

59 FR 17464
Published 4/13/94
Effective 4/4/94

*Consolidation of the NRC Region V
Office With the Region IV Office*

See Part 20 Statements of Consideration

61 FR 1109
Published 1/16/96
Effective 2/15/96

*One-Time Extension of Certain
Byproduct, Source, and Special
Nuclear Materials Licenses*

See Part 30 Statements of Consideration

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61 FR 6762
Published 2/22/96
Effective 4/22/96

*Employee Protection Policies; Minor
Amendments*

See Part 19 Statements of Consideration

61 FR 24669
Published 5/16/96
Effective 6/17/96

*Termination or Transfer of Licensed
Activities: Recordkeeping
Requirements*

See Part 20 Statements of Consideration

61 FR 29636
Published 6/12/96
Effective 6/12/96

*Minor Amendments to Miscellaneous
Cross-References*

See Part 30 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
71**

PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL

STATEMENTS OF CONSIDERATION

52 FR 8225
Published 3/17/87
Effective 7/14/87

Licenses and Radiation Safety
Requirements for Well Logging

See Part 39 Statements of Consideration

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General
Information

See Part 1 Statements of Consideration

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of
Information

See Part 2 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI
and GPA

See Part 30 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 23382
Published 6/22/88
Effective 7/26/88

Retention Periods for Records;
Correction

See Part 30 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes

See Part 1 Statements of Consideration

56 FR 31472
Published 7/10/91
Effective 8/9/91

Revision of Fee Schedules; 100% Fee Recovery

See Part 170 Statements of Consideration

56 FR 37828
Published 8/9/91
Effective 8/9/91

*Revision of Fee Schedules; 100% Fee
Recovery, Correction*

See Part 170 Statements of
Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

59 FR 48944
Published 9/23/94
Effective 10/24/94

*Certification of Gaseous Diffusion
Plants*

See Part 76 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

PART 71 • STATEMENTS OF CONSIDERATION

60 FR 50248
Published 9/28/95
Effective 4/1/96

10 CFR Part 71

RIN 3150-AC41

Compatibility With the International Atomic Energy Agency (IAEA)

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is revising the regulations governing the transportation of radioactive material. The final rule conforms NRC regulations with those of the International Atomic Energy Agency, and codifies criteria for packages used to transport plutonium by air. This action is necessary to ensure that NRC regulations reflect accepted international standards and comply with current legislative requirements. **EFFECTIVE DATE:** April 1, 1996. Section 71.52 expires April 1, 1999.

ADDRESSES: Single copies of the regulatory analysis for this rule may be obtained on request from the contact. Copies of the regulatory analysis may be examined and copied, for a fee, in the Commission's Public Document Room, at 2120 L Street (Lower Level), NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: John R. Cook, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-8521.

SUPPLEMENTARY INFORMATION:

Background

The U.S. Nuclear Regulatory Commission is revising its regulations, for the safe transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency (IAEA) and to incorporate new criteria for packages used to transport plutonium by air. The revised rule, in combination with a corresponding amendment of Title 49, Code of Federal Regulations, by the U.S. Department of Transportation (DOT), would bring U.S. regulations into general accord with IAEA regulations (Regulations for the Safe Transport of Radioactive Material, 1985 Edition, Safety Series No. 6). The final rule also adopts approval criteria for packages used to transport plutonium by air. These criteria were developed in response to Public Law 94. Except for these revisions, NRC's basic standards for packaging and transportation remain essentially unchanged. These regulations apply to

all NRC licensees who transport, or offer for transport, byproduct, source, or special nuclear material, and will help ensure the continued safe transportation of radioactive materials in domestic and international commerce.

In addition, three Petitions for Rulemaking, concerning the transportation of Low Specific Activity (LSA) radioactive material, are denied in this action.

In 1969, the IAEA, recognizing that its international transport regulations should be revised from time to time on the basis of scientific and technical advances, as well as accumulated experience, invited member states to submit comments and suggested changes to the regulations. As a result of this initiative, the IAEA issued revised regulations in 1973 (Regulations for the Safe Transport of Radioactive Material, 1973 Edition, Safety Series No. 6). The IAEA also decided to periodically review its transportation regulations, at intervals of about 10 years, to ensure that the regulations are kept current. As a result, a review of IAEA regulations was initiated, in 1979, that resulted in the publication of revised regulations in 1985 (Regulations for the Safe Transport of Radioactive Material, 1985 Edition, Safety Series No. 6).

On August 5, 1983 (48 FR 35600) NRC published, in the *Federal Register* a final revision to 10 CFR Part 71, "Packaging and Transportation of Radioactive Material." That revision, in combination with a parallel revision of the hazardous materials transportation regulations of DOT, brought U.S. domestic transport regulations at the Federal level into general accord with the 1973 edition of IAEA transport regulations. Some of the revisions that were eventually included in the 1985 IAEA regulations were anticipated by NRC and DOT when they were finalizing their transportation regulations in 1983. These changes were incorporated in Titles 10 and 49 of the Code of Federal Regulations at that time.

On June 8, 1988 (53 FR 21550) NRC published a proposed revision to its regulations in 10 CFR Part 71 in the *Federal Register* for the purpose of making U.S. transportation regulations compatible with the 1985 edition of the IAEA regulations. In a parallel rulemaking, DOT published a proposed revision to its radioactive material transportation regulations on November 14, 1989 (54 FR 47454). Several corrections to the NRC proposed rule were published in the *Federal Register* on June 22, 1988 (53 FR 23484). Interested persons were invited to submit written comments and

suggestions on the NRC proposal and/or the supporting regulatory analysis by October 6, 1988. The public comment period was subsequently extended to February 9, 1990. On December 8, 1994, the NRC staff provided a briefing on the proposed LSA requirements and the other revisions at the 416th meeting of the Advisory Committee on Reactor Safeguards (ACRS). This meeting also provided industry and the public another opportunity to present their views on the revisions. Based on the public comments, consultations with DOT, and other considerations, the Commission is adopting the proposed rule, with some modifications.

Discussion of Major Changes From Current Requirements

Most of the revisions presented in the proposed rule are being adopted in the final rule. These include additional hypothetical accident test criteria for certain types of packages, an increase in the number of radionuclides with listed A₁ and A₂ values, changes in the currently listed A₁ and A₂ values for some radionuclides, simplification of fissile material transport classes, revised requirements for shipment of LSA materials, and inclusion of criteria for packages used to transport plutonium by air. These changes are discussed in more detail in the following paragraphs.

Additional Accident Test Requirements

IAEA deep-water immersion and dynamic crush tests are adopted in the final rule. The 200 meter (656 ft) deep-water immersion test has been added to the requirements for Type B packages (casks) authorized for irradiated fuel content in excess of 37 PBq (10⁶ Ci) (§ 71.61 Special requirement for irradiated nuclear fuel shipments). The purpose of the deep immersion test, which can be satisfied through engineering evaluation or actual physical test (§ 71.41), is to ensure that the cask containment system does not collapse, buckle, nor allow inleakage of water, if submerged at 200 m (656 ft).

A dynamic crush test (§ 71.73(c)(2) Crush) has also been added to Type B package requirements, for certain lightweight packages that are minimally vulnerable to damage in the 9 m (30 ft) drop test, but which have a high potential for radiation hazard, if package failure occurs. IAEA regulations require the crush test in place of the 9 m (30 ft) drop test, for these packages. NRC is requiring both the crush test and drop test, for lightweight packages, to ensure that package response to both crush and drop forces is within applicable limits.

These requirements only apply to package designs certified after this final

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rule becomes effective. Further, this rule does not apply to packages fabricated under previous versions of Part 71; however, previously fabricated packages are subject to multilateral approval, when used for international transport (§ 71.13(b)).

Expansion of Radionuclide List and Changes in Radionuclide Limits

Table A-1, in 10 CFR Part 71, Appendix A, lists the Type A package quantity limits (A_1 and A_2 values) for many radionuclides. The final rule increases the number of radionuclides listed, from 284 to 378. The final rule also adopts the revised A_1 and A_2 values contained in the 1985 edition of the IAEA regulations. As a result, 144 A_1 values previously listed in Table A-1 are being increased, and 73 are being decreased, while 129 A_2 values are being increased, and 95 decreased. In addition, the final rule modifies the method used to determine A_1 and A_2 values for unlisted radionuclides.

Simplification of Fissile Material Classes

The final rule revises the criteria for shipment of fissile material. Specifically, the rule eliminates the three fissile class designations currently used and establishes a single set of criteria for all packages of fissile material, uses the transport index as the primary control for the number of fissile packages that may be transported together, and requires special arrangements for fissile packages that do not meet the established criteria.

Inclusion of Criteria for Air Shipment of Plutonium

The final rule amends Part 71 to include approval criteria for packages used to transport plutonium by air (§§ 71.64, 71.74, and 71.88). These criteria were developed as a result of Pub. L. 94-79, which prohibited NRC from licensing the air shipment of plutonium, in any form, until NRC certified to the Congress that a safe container had been developed. The NRC subsequently developed and certified package criteria to Congress and published the criteria in NUREG-0360, Qualification Criteria to Certify a Package for Air Transport of Plutonium, dated January 1978. This final rule incorporates these criteria. There are no corresponding criteria in IAEA regulations.

Modifications From Proposed Rule

The final rule differs from the proposed rule in several significant respects and are described as follows:

1. Package limit for Shipment of LSA and Surface-Containment-Object (SCO) Material. In its 1985 regulations, the IAEA added a limit of 10 mSv/hour (1 rem/hour) at 3 meters for the radiation level from the unshielded contents of LSA and SCO (Surface Contaminated Object) packages not designed to withstand accidents. This radiation level limit controls the external radiation exposures to individuals if an LSA package is severely damaged in a transportation accident.

The IAEA limit considers the loss of package shielding during an accident but it does not consider the possibility that a package's contents might be released and redistributed, causing a reduction in self-shielding of the contents. The reduction in self-shielding could result in potential accident radiation levels that significantly exceed IAEA's 10 mSv/hour (1 rem/hour) at 3 meters limit.

The IAEA dose rate limit provides a significant added degree of protection over the 1973 IAEA regulations (which specify no quantity limit for LSA packages). NRC and DOT did not believe, however, that the IAEA limit provided the same level of safety for all types of LSA material, particularly for relatively large quantities of radioactive materials contained in dispersible LSA materials (e.g., resins and other media used in liquid radioactive waste treatment).

In lieu of the radiation level limit, DOT and NRC proposed a $2A_1$ quantity limit for all LSA packages. Although this proposal addressed the accident concern by directly limiting package quantity, it was not compatible with the IAEA provisions. Both agencies received many comments from industry on the proposed $2A_1$ quantity limit that objected to the impacts on occupational dose and shipping costs. Further, after a briefing on the draft final rule on December 8, 1994, the Advisory Committee on Reactor Safeguards (ACRS) issued a letter report, dated December 19, 1994, recommending, inter alia, that the requirements again be reevaluated with the objective of making them equivalent to the IAEA regulations.

After consideration of comments from ACRS and industry, DOT and NRC have agreed to adopt the IAEA LSA provisions. Accordingly, the final rule imposes a limit on the external radiation level at 3 meters from the unshielded contents of LSA-II, LSA-III, or SCO-II packages of 10 mSv/hour (1 rem/hour) (§ 71.10(b)).

2. The final rule delays imposing the LSA package external radiation level limit for 3 years. The effect of imposing

the LSA package limit is to reduce the quantity of LSA materials that can be transported in non-Type B, LSA packages. The final rule may increase demand for Type B packages, and there are very few currently available. NRC had proposed a 1 year delay in implementing the new LSA rules. Industry comments expressed the view that 1 year is not an adequate period of time to design a package, have it approved by NRC, and manufacture a reasonable number of Type B waste packages. NRC agrees, and has included a delay of 3 years from the effective date of this rule for implementation of this provision of the final rule (§ 71.52).

3. The proposed rule would have adopted $2A_1$ as the threshold below which licensees are exempt from NRC requirements for packages containing LSA material (except for §§ 71.5, 71.88 and 71.53). Because NRC and DOT are adopting the IAEA LSA package limit, the final rule changes the exemption threshold to 1 rem/h at 3 m (§ 71.10(b)(2)). Thus, designs for packages used to ship LSA or SCO in quantities where the external dose rate exceeds 1 rem/h at 3 m from the unshielded material will be subject to NRC Type B package regulations. Package designs for lesser quantities of LSA or SCO will be self-certified, by package designers, as meeting applicable DOT IP-1, IP-2, IP-3, Type A, or strong tight, package regulations. [Licensees should note that DOT has prescribed, in its final rule, the use of IAEA Industrial Packages (IP-1, IP-2, and IP-3) for LSA and SCO material. For domestic transportation only, DOT also provides for the use of Type A, and strong tight, containers.]

4. For compatibility with IAEA and DOT requirements, a new, "§ 71.77 Qualification of LSA-III Material," has been added to Subpart F. This section prescribes assessment of LSA-III material leaching. (In the proposed rule, § 71.77 contained "Tests for special form radioactive material." Those requirements have been moved to § 71.75 "Qualification of special form material," in the final rule.)

Other Administrative Actions

The final rule corrects numerical errors in §§ 71.20(b)(3) and 71.24(b)(4) of the current rule (§§ 71.20(c)(3) and 71.24(c)(4), respectively, of the proposed rule). These errors, which were not identified at the time the proposed rule was published, resulted when the limit for graphite was expressed as an atomic ratio, instead of a mass ratio. The errors were inadvertently adopted, in Part 71, during a rulemaking in 1983, to make

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NRC regulations compatible with 1973 IAEA transportation regulations. IAEA has subsequently corrected these errors in the 1985 edition of its transportation regulations.

Section 71.20(b)(3), as currently written, limits the mass of graphite to " * * * 150 times the total mass of uranium-235 plus plutonium." Section 71.20(c)(3), in the final rule, would be amended to read as follows: "The total mass of graphite present does not exceed 7.7 times the total mass of uranium-235 plus plutonium." Section 71.24(c)(4) would be similarly revised to change the limits on graphite from 150 to 7.7 times the total mass of uranium-235 plus plutonium.

NRC is correcting these errors in this final rule. The affected sections may bear on the criticality safety of fissile materials in transport. In addition, these corrections are expected to have minimal impact because there are no shipping casks currently being used that were designed using the erroneous provisions.

Summary and Resolution of Public Comments

There were 171 letters of comment received on the proposed rule from industry, State, and local governments; environmental organizations; medical facilities; and members of the public. A discussion of general comments is presented below, followed by responses to comments on specific sections of the proposed rule.

One of the most frequent comments noted differences among NRC, DOT, and IAEA definitions and requirements where there were no reasons for the differences. Many of the differences between NRC and DOT requirements resulted from the long period of time between publication of the NRC proposed rule (June 8, 1988) and publication of the DOT proposed rule (November 14, 1989; 54 FR 47454). The two proposed rules were intended to be published on or about the same date but circumstances did not permit concurrent publication. Between publication of the NRC and DOT rules, IAEA published a complete set of minor changes and changes of detail to its regulations. These changes were not contained in the NRC proposed rule, but were introduced in the DOT proposed rule. In addition, a large number of printing errors appeared in the text of the NRC proposed rule. Only the most significant errors were rectified in a correction notice published June 22, 1988 (53 FR 23484). The remaining inconsistencies have been corrected in the final rule.

Another frequently raised comment was in response to NRC's inclusion of new criteria for the air transportation of plutonium. Out of 171 total letters of comment on the proposed rule, 119 of those letters were concerned with the single issue of air transportation of plutonium. In general, these letters requested that NRC codify the NUREG-0360 criteria for the safe air transportation of plutonium, notwithstanding urging by the U.S. Department of Energy (DOE) that NRC withhold codification until it could consider rules being developed by IAEA for the safe air transportation of plutonium. Many of these letters, primarily from residents of Alaska, attributed development of the NUREG-0360¹ criteria to U.S. Senator Frank Murkowski. However, the criteria in NUREG-0360 were developed by the NRC in response to Public Law 94-79, enacted in 1975. (Senator Murkowski sponsored much more recent legislation on transportation of plutonium by air, identified as Section 5062 of Public Law 100-203, for which regulatory criteria have not been developed.) NRC has relied on the NUREG-0360 criteria for plutonium transportation by air since the criteria were published in 1978. DOE's request that NRC withhold the codification of the NUREG-0360 criteria while NRC considers the IAEA alternative cannot be accommodated because there is no existing IAEA alternative to consider and none is expected for several years. Although the IAEA development process has begun, the process is long and multifaceted. Predictions as to final content of an IAEA alternative cannot be made at this time. It also should be noted that, under Public Law 94-79, the proposed criteria would apply to any U.S. import, export, or domestic plutonium air transport regardless of IAEA regulations. Accordingly, the plutonium air transport criteria are incorporated in the final rule.

Section 71.0 Purpose and Scope

One comment suggested that § 71.0 (a) could be clarified by referring to the need for a Type B package rather than to licensed material in excess of a Type A quantity. Section 71.0 (a)(2) would then read "Procedures and standards for NRC approval of packaging and

shipping procedures for fissile material and for other licensed material required by this Part to be transported in a Type B packaging."

Although the suggested wording may be a good description of Part 71, Fissile Type A packages are still subject to NRC approval. Therefore a scope based on quantity of radioactive material is better than a scope based on a single type of package.

Section 71.4 Definitions

One comment noted that the term "licensed material" is used in Part 71, in several locations, but is not defined in Part 71. In response to this comment, NRC has added the definition of "licensed material," as codified in 10 CFR Part 39, to the definitions in Part 71. The term "licensed material" only includes radioactive material licensed by the NRC. One comment noted that in defining the term "exclusive use," the parenthetical note " * * * also referred to in other regulations as 'sole use' or 'full load'" is no longer necessary. Those other terms have been almost completely phased out, and IAEA has eliminated the clarifying note. NRC agrees and also has eliminated the clarifying note.

One comment noted that the definition of "exclusive use" requires that loading and unloading be performed by personnel having radiological training and resources appropriate for safe handling of the consignment. However, the definition provides no criteria to indicate what that training should be. NRC believes this is an area where the regulation includes a sufficient level of detail to define the intent of the provision. NRC further notes that DOT has established requirements for hazardous material employee training (see 49 CFR Part 172, Subpart H, §§ 172.700-172.704, effective July 2, 1992).

One comment suggested that the term "transport index" specify that the number be rounded up "to the next tenth" rather than "to the first decimal place." NRC believes that either terminology is adequately clear, and is retaining the original wording for uniformity. This wording has been used satisfactorily over a number of years.

One comment suggested that the "Natural uranium" definition should be clarified to indicate that the phrase "the remainder being uranium-238" refers strictly to a weight basis, not to a radioactivity basis. NRC has made the clarification.

One comment raised the question whether "licensee" and "licensee of the Commission" are synonymous, and whether the terms include "persons

¹ Copies of NUREG-0360 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

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licensed by an Agreement State," so that the general licenses of §§ 71.12–71.24 could apply. NRC asserts that the terms "licensee" and "licensee of the Commission" are synonymous. For uniformity, the NRC has eliminated the longer of the two terms in the final rule. Neither term includes Agreement State licensees. However, Agreement State licensees engaging in activities in non-Agreement States, or in offshore waters, under the reciprocity provisions of 10 CFR Part 150, "Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters under Section 274," are subject to the requirements of 10 CFR Part 71. In such instances, the NRC general licenses mentioned above apply to Agreement State licensees.

One comment noted that the term "specific activity" should only be used when describing the radioactivity of a radionuclide per unit mass of the element. When describing the radioactivity per unit mass of a material in general, the comment suggested the use of the words "concentration of radioactivity." NRC has been unable to confirm any preferred limited use of the term "specific activity," and, in view of the years of successful international use of the term in its broader sense, plans to continue that broader use.

One comment noted that the NRC and DOT definitions of "exclusive use" are not identical, and that the DOT definition appears preferable. In the final rules promulgated by NRC and DOT, the definitions of "exclusive use" are identical.

One comment noted a difference in quantities, for DOT's proposed rule "highway route controlled quantities," in 49 CFR 173.403, and for NRC's "advanced notification of shipment of nuclear waste" requirements in 10 CFR 71.97. The limits were intended to be the same. As the comment suggested, the error (by NRC) was caused by the rounding of the International System (of units) (SI) and customary units and has been corrected in this final rule.

Section 71.4 Definitions (Dual Unit System—The International System of Units Followed or Preceded by U.S. Standard or Customary Units).

Ten comments suggested both support for the dual unit system used in both NRC and DOT proposed regulations and potential problems that might result from a dual unit system. Several other comments suggested that NRC and DOT be consistent in the use of units. NRC and DOT intend to use dual units in specifying the regulatory requirements. The introductory language to § 71.4 states that the different units are

functionally equivalent and can be used interchangeably for purposes of this part. There are no paperwork requirements in Part 71 (e.g., records, reports) where the mandatory use of units is specified. DOT regulations also specify regulatory requirements in terms of dual units. In 49 CFR 171.10, DOT specifies that the SI units are intended to serve as the standard, but that the customary units (rounded) are included to provide a functionally equivalent limit. The dual unit approaches used by NRC and DOT are compatible.

In addition, DOT specifies, in 49 CFR Part 172, the units that must be used to satisfy the communication standards for shipping papers and package labels. Sections 172.203(d)(4) and 172.403(g)(2) require that shipping papers and package labels be completed either in SI units alone or in SI units and customary units. These requirements also permit, for a period of one year after the effective date of the final rule, the use of customary units on shipping papers and package labels for domestic shipments only.

One comment noted that the double conversion from customary units to SI units, and back to customary units produces specifications that are out of line with standard material sizes. For example, a test with what was a standard 6-inch-diameter mild steel bar, with an edge radius of $\frac{1}{4}$ inch, was proposed as a test with a 5.91-inch diameter mild steel bar, with an edge radius of 0.236 inch. The converted customary units of length and weight have been returned to their original values in the final rule.

One comment suggested greater consistency of units between the NRC and DOT transportation regulations and the Commission's "Standards for Protection against Radiation" in 10 CFR Part 20. Since the NRC and DOT transportation rules were proposed, NRC has revised 10 CFR 20.1004, "Units of Radiation Dose," and 10 CFR 20.1005, "Units of Radioactivity," to permit the use of either customary or SI units. These revisions achieve greater consistency of units among transportation and radiation protection regulations.

One comment noted that differences between IAEA and Part 71 A values (expressed in conventional units) may cause problems in international transport. The curie values in Safety Series #6, Table I are approximate, rounded down from the TBq values after conversion to Ci, whereas the curie values in Table A-1 Part 71 are converted from the TBq values to three significant figures without rounding down. The Part 71 method was used

because it yields values that more closely approximate previous Table A-1 values. As noted earlier in this preamble, DOT regulations will require the use of the SI units in shipping papers and labels for international shipments (although conventional units may be used in addition to the SI units). The use of SI units should retain consistency with the IAEA regulations.

One comment suggested that the term "transport index" be defined using both customary and SI units, as IAEA has done. The proposed definition was expressed only in customary units. NRC agrees with this suggestion and has adopted the DOT definition of "transport index" which includes both customary and SI units.

Section 71.4 Definitions (LSA and SCO in Particular)

Several comments related to clarification of LSA definitions.

Two comments noted the typographical error in the proposed rule in which the "water with tritium" concentrations for LSA-II were printed as 27.0 Ci/λ (1 TBq/λ), rather than as 27.0 Ci/l (1 TBq/l). Two other comments noted that the numerical values differed from those in the DOT proposed rule (20 Ci/l and 0.8 TBq/l, respectively). One comment stated a preference for the 27.0 Ci/l limit.

NRC values in the proposed rule were derived from the IAEA and DOT values by rounding up the terabequerel limit and then converting to curies. For consistency, NRC has adopted the IAEA and DOT values in the final rule.

Three comments were concerned with the definition of LSA-I. The first comment noted that material generated from the extraction of uranium or thorium was not classified into any LSA category. The comment recommended an LSA-I classification for this material. Another comment recommended that the term "contaminated earth" in LSA-I be expanded to include "soil, earth, concrete rubble, and other bulk debris." A third comment expressed concern that mill tailings exceeding 10^{-6} A₂/g could not be shipped in bulk under the proposed rule. The comment recommended that either mill tailings be specifically included in the definition of LSA-I without an activity or concentration limit, or the specific activity limit for LSA-I be increased to 4×10^{-6} A₂/g.

NRC agrees that ore-like materials (materials with highly uniform distribution of small quantities of radionuclides) should be transported as LSA-I material. Accordingly, the definition of LSA-I has been changed from "contaminated earth * * *" to

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"contaminated earth, mill tailings, concrete rubble and other bulk debris * * *". Further, NRC believes that mill tailings will meet the proposed 10^{-6} A₂/g specific activity limit, and therefore has not increased the limit.

Two comments suggested that NRC include a definition of the term "closed transport vehicle" used in the definition of LSA-I. This term has been removed from the definition of LSA-I because NRC and DOT concluded the use of a vehicle-based term in the definition of a material was inappropriate. "Closed transport vehicle" is defined in DOT's rule (49 CFR 173.403(c)).

One comment suggested that LSA-II material definition be expanded to include activated materials, consolidated wastes, and materials intrinsically contained in a relatively insoluble matrix. LSA-II is expected to include primarily unsolidified material in which the radioactive material may or may not be uniformly distributed, including lesser activity resins and filter sludges, other similar materials from reactor operations, similar materials from other fuel cycle operations, scintillation vials, and hospital, biological, and decommissioning wastes. There is, however, no prohibition against activated materials, consolidated wastes, and materials intrinsically contained in a relatively insoluble matrix in group LSA-II, provided the specific activity limit is met. The IAEA established the LSA-III group principally for irradiated reactor parts and other activated, or activated and contaminated, equipment that exceed the limits for the other LSA groups. NRC does not believe it is necessary to expand the LSA-II group definition to include these materials. The NRC believes that to do so might cause confusion with the LSA-III definition.

One comment stated that dewatered material should be defined as a solid for LSA-II. NRC agrees that dewatered resins should be subject to the specific activity for solids under LSA-II and notes that there is no prohibition against dewatered resins in LSA-II.

One comment asked whether the specific activity limits for LSA-II and LSA-III materials were pre- or post-solidification. The specific activity limits apply to materials as prepared for shipment, i.e., post-solidification. However, licensees should note that packaging or shielding material may not be considered in determining either the specific activity or the radiation level at 3 m.

One comment recommended that NRC remove the criterion for leaching that is applicable to LSA-III solids. The

criterion limits the loss of radioactive material per package, when the package is placed in water for 7 days, to 0.1 A₂. Another comment stated that the criterion for leaching in the definition of LSA-III needed to be compatible with the leachability index requirements for solidified waste in 10 CFR Parts 60 and 61.

A control on the potential intake of these LSA-III materials is necessary because the radioactivity is not entirely insoluble. Because non-Type A packaging might be used in transporting these materials, a release of 10^{-2} A in an accident is assumed, with a possible bystander uptake of 10^{-3} A₂, under the standard model for determining A₂ values. Because the total body uptake must be limited to 10^{-6} A₂, the package's dispersible radioactive contents (i.e., the leachate liquid), must not exceed 0.1 A₂. For purposes of compatibility with IAEA and DOT requirements, a new § 71.77, "Qualification of LSA-III Material," has been added to Subpart F. This section prescribes testing requirements for assessment of LSA-III material leaching. The hazard from the transportation of these materials is different from that posed by their disposal; therefore, no attempt has been made to achieve compatibility between transportation and disposal leachability limits.

One comment found the proposed rule unclear on the need for three LSA categories and how to classify materials under the criteria, including compacted dry active waste. IAEA developed the three LSA groups to differentiate controls based on the activity, distribution, and form of LSA material. The LSA-I group accommodates very uniformly distributed materials, such as ores. LSA-III accommodates large activated parts or solidified materials. LSA-II accommodates less uniformly distributed materials, such as compacted dry active waste.

One comment described radioactive atoms in activated products as inherently non-dispersible and relatively non-leachable. The comment recommended that activated materials be authorized for shipment as LSA-I, provided other transportation requirements are met. Although activated materials do not pose a dispersibility hazard, these materials are subject to localized concentrations of non-uniformly distributed material. Consequently activated materials are included in groups LSA-III and LSA-II.

One comment suggested changing the definition of SCO from " * * * not itself radioactive * * *" to " * * * not classed as radioactive material under these rules * * *," since nothing is free

of radioactive material. NRC and DOT have adopted this comment.

Several comments identified a typographical error in the limit for non-fixed contamination from beta and gamma emitters on the accessible surface of SCO-I objects. That value has been changed from 1.08×10^{-5} Ci/cm² to 10^{-4} microcurie/cm². These comments also noted inconsistencies in the NRC and DOT contamination limits e.g., (1.08×10^{-4} μ Ci/cm² and 10^{-4} microcurie/cm², respectively). NRC has adopted the DOT convention for these limits in the final rule.

One comment inquired as to whether it was consistent for NRC not to exempt SCO-I from transportation requirements when facilities with similar contamination levels may be released for unrestricted use according to NRC Regulatory Guide 1.86. Under the final rule, SCO-I group materials are exempt from NRC regulations, except for one § 71.5 requirement that licensees comply with DOT requirements. Further, the SCO-I non-fixed surface contamination limits are greater than, not similar to, the corresponding acceptable surface contamination levels in Table 1 of NRC Regulatory Guide 1.86.

Several comments noted that the term "inaccessible surface" used in the SCO-I definition is not defined and that it was not clear how to comply with a limit for surfaces that were inaccessible. This provision provides for the disposal of materials that have contaminated surfaces that are not readily accessible. Examples of inaccessible surfaces include: inner surfaces of pipes, inner surfaces of maintenance equipment for nuclear facilities, and inner surfaces of glove boxes. Compliance can be achieved by sampling a small area of the surface that may be accessible or by a documented estimate of the inaccessible surface contamination.

One comment stated a belief that the implementation of SCO groups would: (a) Further complicate the preparation and shipment process, without an increase in the safety and quality of waste shipments; (b) result in a significant increase in personnel exposure costs, and delays for preparation and disposal of radioactive waste; (c) require substantial initial personnel training; and (d) require extensive revisions of existing procedures and waste shipping computer programs. NRC acknowledges that the introduction of multiple LSA and SCO groups complicates the transportation of LSA materials. The IAEA consensus was that it was appropriate to regulate SCO separately from LSA materials. The purpose of

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these groups is to recognize the lesser hazard of LSA and SCO relative to other radioactive materials, and to provide relief from shipment requirements that would otherwise apply to these materials, while still assuring safety.

With regard to exposure, it is true that the LSA groups will require some increased material treatment or handling. However, this handling is necessary to eliminate the current practice in which there is no quantity limit on LSA packages. This situation poses a risk to the public during transport. Costs will increase, but not by an amount considered significant for the industry. Training with regard to the LSA groups, or any new provision, will be required. Periodic training of hazardous material employees regarding the safe transportation of hazardous materials is required by DOT regulations (49 CFR Part 172 Subpart H); instruction with regard to the LSA and SCO groups may be included at that time.

Implementing the LSA groups will require revision of procedures and computer codes. These costs are judged to be acceptable in order to achieve compatibility with the IAEA regulations for the safe transport of radioactive materials.

A comment noted that the SCO classification "appears to be well-meaning," but that the proposed criteria (presumably the proposed $2A_1$ limit) "detract from its potential benefit and utility," and that it would be easier and less expensive for both producers and consumers of electricity to enjoy the benefits of new transportation systems without the related restrictions. As stated previously, NRC has adopted the IAEA 10 mSv/h (1 rem/h) at 3 m limit for LSA packages, and believes that a limit is needed to protect the public from the potential for excessive external radiation exposure in the case of a severe transportation accident.

One comment suggested that the rule make clear that not every SCO needs to be surveyed and that a random representative survey is adequate. There is no requirement that each SCO in a package be surveyed. The shipper must be able to demonstrate, however, that the package contents comply with applicable SCO definitions.

One comment objected to the upper limit for removable surface contamination for SCO-II (10^{-2} $\mu\text{Ci}/\text{cm}^2$ for beta and gamma emitters) because this limit is a factor of 90 less than current LSA limits, and would require extensive decontamination of reactor outage equipment at each site. The comment stated such decontamination is not warranted because it violates the as low as

reasonably achievable (ALARA) principle, and is not justified based on shipping experience. The comment suggested that an SCO-III group be defined for materials exceeding SCO-II, and that Type A packaging be required for such materials.

Apparently, this comment is comparing the SCO-II limit for removable (non-fixed) surface contamination with the current LSA limit that applies to nonradioactive material objects that are externally contaminated with radioactive material that is not readily dispersible. The SCO-II limit for fixed surface contamination is a more appropriate comparison with the current limit for not readily dispersible contamination. The SCO-II fixed contamination limit is 20 times greater than the current LSA limit for not readily dispersible contamination.

Section 71.5 Transportation of Licensed Material

Two comments asked for clarification of the specification " * * * outside of the confines of its plant or other place of use," when describing transportation made subject to DOT regulations. One of those comments suggested that the provision be reworded as " * * * outside the site of usage, as specified in the NRC license, or where transport is on public highways." This wording clarifies the provision and has been included in the final rule. Similar wording has been substituted in § 71.0(c).

A comment asked whether § 71.5(b) means "that an approval must be obtained when the shipment is covered by local State regulations and those regulations will be followed." The purpose of § 71.5(b) is to impose, by NRC authority, pertinent DOT requirements on shipments, by NRC licensees, that are not normally subject to DOT requirements. There is no exemption from the requirement of § 71.5(b) regarding compliance with State or local regulations.

Section 71.10 Exemption for Low Level Materials

A comment noted that the SI unit specification of 74 kBq/kg (0.002 $\mu\text{Ci}/\text{g}$) for exempted low-level radioactive material in § 71.10(a) is not consistent with the 70 Bq value specified in the DOT proposed rule. The specification in § 71.10(a) has been changed to 70 Bq/g, the value in the DOT's final rule. This exemption is applicable only with respect to transportation, and is not generally applicable to other Commission-regulated activities.

A comment noted that it would be useful to have an exemption for small quantities of radioactive material in

§ 71.10(a) as well as the exemption for LSA material. The safety rationale developed by IAEA² for LSA material does not extend to other radioactive materials. IAEA has been informed that a small quantity exemption may be a useful concept. However, this exemption has not been developed yet.

One comment asked that NRC clarify the use of a reference to § 71.53 in the "Exemption for low-level materials" provision of § 71.10(b), a provision that pertains to Type A and LSA packages. In addition to control over excessive radiation, the Commission's responsibility with respect to fissile material is to provide reasonable controls to avoid the occurrence of accidental criticality. The regulatory standards for this are found in §§ 71.55 and 71.59. There are some relatively common types of fissile material packages for which there is no credible risk of criticality in transport, even in the absence of controls. These packages are described in § 71.53, and are exempted from the criticality controls of §§ 71.55 and 71.59, because the controls are unnecessary.

The provisions of § 71.10, "Exemption for low-level materials," provide broad exemptions from 10 CFR Part 71 rules that relinquish to DOT the control of types of shipments that are of low risk both from radiation and criticality standpoints. To ensure that only low criticality risk shipments are included in § 71.10(b), NRC restricts the exemption to Type A and LSA packages that either contain no fissile material or satisfy the fissile material exemptions in § 71.53. It should be noted that the exemption does not relieve licensees from DOT transportation requirements by reason of NRC authority, nor does the exemption relieve licensees from the restrictions on air transportation of plutonium imposed by Congress.

The proposed rule introduced a $2A_1$ quantity limit, for LSA packages not designed to withstand accidents (non-Type B packages), to control potential external radiation exposures. Thirty comments were received requesting that the limit be changed in the final rule. Two comments supported no limit; nine supported the IAEA dose limit of 10 mSv/h (1 rem/h) at a distance of 3 meters for an unshielded package; 4 supported higher multiples of A_1 ; and 15 supported the optional use of either the IAEA limit or a higher multiple of A_1 . As described previously in this

² International Atomic Energy Agency Safety Series #7—"Explanatory Material for the IAEA Regulations for the Safe Transport of Radioactive Material" (1985 Edition). Available from Bernam- Unipub, 4611-F Assembly Drive, Lanham, MD 20706-4391. Tel. (301) 459-7666.

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preamble, NRC and DOT have decided that the best overall response on the LSA issue and these comments is to drop the proposed 2A, quantity limit, and to adopt the IAEA radiation level limit of 10 mSv/h (1 rem/h) at 3 m from the unshielded contents.

One comment suggested that the need for labels on LSA packages should be reconsidered. Package labelling falls under DOT jurisdiction. In its final rule, DOT has retained the exception from package marking and labeling requirements for domestic LSA shipments consigned as exclusive use (see 49 CFR 173.427).

One comment expressed concern over the transition of control of packages for shipping Type B quantities of LSA radioactive material from NRC to DOT. NRC has a centralized package design approval authority, whereas DOT authority allows a shipper to determine acceptable package designs (i.e., self-certify package designs). The comment expressed apprehension about permitting each shipper to review package and shipping restrictions against DOT regulations, a situation that could result in some confusion and different interpretations of the regulations.

In the final rule, the IAEA limit of 1 rem/h at 3 m from the unshielded material contents has been established as the threshold for NRC regulation of LSA or SCO package designs. NRC will review and approve, if adequate, designs for packages that contain quantities of LSA or SCO material that exceed that limit. The review by regulatory authority of package designs for quantities that exceed the IAEA limit is consistent with the approach used by other IAEA member states.

Section 71.13 Previously Approved Package

One comment proposed that the date specified in § 71.13(b)(2) be December 31, 1990, instead of December 31, 1992, to be consistent with IAEA transportation regulations. The original 1985 IAEA transport regulations specified December 31, 1990, as the cutoff date for the routine use of packages manufactured under the 1973 edition of the regulations. That date was subsequently extended for 2 years by one of the periodic updates of IAEA regulations and was properly used in the proposed rule. However, since the proposed date of December 31, 1992, has passed, the final rule has been revised (by eliminating reference to any particular date) to make this provision effective on the date that the final rule becomes effective.

Two comments noted that the preamble to the proposed Part 71 indicated that Type B and fissile packages fabricated before a certain date and not used internationally could continue to be used domestically until the end of their useful lives. The licensee would not need to demonstrate that the packages satisfy the new crush test or deep-immersion test. The comments would take that provision one step further and require the crush and deep-immersion tests only for international use packages.

NRC believes that the international package standards should be used by the United States for both domestic and international shipments, to the extent practicable. However, based on a history of safe use under earlier safety standards, and the absence of unfavorable operational data, NRC will allow the continued use of existing packages in domestic transport until the end of their useful lives. NRC will not allow, however, the continued fabrication of packages to the old designs. This action permits use of existing packages. It does not perpetuate package designs that can be discarded or upgraded to satisfy the new standards.

Another comment suggested grandfathering the existing Type A casks now approved for transporting Type B quantities of LSA radioactive material, until the Type B waste casks required to satisfy the new standards become available. NRC has adopted the suggestion, extending the proposed provisions in § 71.52, "Exemption for low-specific-activity (LSA) packages," to a 3 year period, to give the industry time to design, receive approval, and fabricate new Type B waste packages.

Section 71.22 General license: Fissile Material, Limited Quantity, Controlled Shipment

One comment requested clarification as to whether the Type A limit imposed in § 71.22(c) also applies to § 71.22(d).

The requirements of §§ 71.22(a) through 71.22(e) are cumulative, each imposing additional requirements on the use of the general license. The radioactivity limit and mass limits of § 71.22(c) apply to packages, whereas the mass and mass ratio limits of § 71.22(d) apply to shipments.

A comment noted an error, in § 71.22(d)(3), which changed the intent of the section. The commenter suggests that the phrase "exceeds unity" at the end of § 71.22(d)(3) be replaced by the phrase "does not exceed unity." NRC agrees and has made that change.

Section 71.24 General License: Fissile Material, Limited Moderator, Controlled Shipment

One commenter asked if the statement in § 71.24(b), " * * * a quality assurance program approved by the Commission as satisfying the provisions of Subpart H of this part," is any different from " * * * a quality assurance program approved by the Commission." The two statements are different in that the first is more specific and provides more detail. There are several different quality assurance programs, in different licensing areas, approved by the Commission. Specifying that the program must satisfy Subpart H makes it clear as to the type of quality assurance program is required.

One commenter recommended inserting "by weight" after "1 percent" in § 71.24(c)(6). NRC agrees and has made this change in § 71.24(c)(7), as well.

With respect to a general license for a package containing fissile contents, one commenter requested clarification of what is meant by "no uranium-233" in § 71.24(c)(6). For a general license under § 71.24(c)(6), a package containing fissile contents must have no detectable U-233. The method for making this determination can be decided by the licensee. For example, the licensee can make this determination by performing an assay or by knowing the history of the material.

Subpart D—Application for Package Approval

One comment suggested changing the title of Subpart D to "Application for Type B Package Approval" for clarity. Because NRC also approves Type A packages for fissile material, the title of Subpart D continues to refer to "Package Approval."

Section 71.38 Renewal

One comment suggested that NRC provide some administrative acknowledgment when a timely application for renewal of a certificate of compliance has been received to provide proof that timely renewal is in effect. The Commission does not believe that proof of timely renewal is particularly important and that providing an acknowledgment to each registered user of a package would be too burdensome for the benefit gained.

Section 71.43 General Standards for All Packages

Four comments suggested the addition of IAEA regulations relating to packaging of liquids and gases to Part 71, including those pertaining to the special free drop and penetration tests

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for liquids and gases. The NRC approves only Type B and fissile material packages. The NRC also notes that fissile material packages must be evaluated for hypothetical accident conditions more severe than the tests for liquids. Furthermore, there are currently no NRC-licensed packages designed for gaseous fissile materials and NRC does not anticipate any future applications for such packages. These additional provisions would complicate regulations that are presently adequate. IAEA standards on absorbent material and double containment have been selectively included in DOT regulations.

Eight comments disagreed with the NRC view that § 71.43(f) should continue to restrict to "no significant increase" any change in external surface radiation levels, as a result of subjecting a package to the defined normal conditions of transport. The comments argued that the 20 percent increase specified in IAEA regulations is a safe, reasonable, and practical number that could not reasonably be lower, and that specifying a value in the rule provides the package design engineer and the NRC review engineer a measurable goal that is consistent both with IAEA and with engineering practice.

Type B and fissile material packages can be readily designed so that normal conditions of transport result in no significant increase in dose rates, and that a twenty percent increase in dose rates because of normal handling is excessive. In addition, if a package were designed so that the external dose rate could increase 20 percent during normal handling, the package could exceed the dose rate limits in § 71.47 during transport, and would be an item of non-compliance. NRC and DOT have therefore decided to not adopt the IAEA "20 percent increase" provision, and to retain the current "no significant increase" provision.

Four comments suggest the addition of the special provisions of IAEA regulations pertaining to the transportation of radioactive material by the air mode. NRC has determined that special requirements for transport of packages by air should be excluded from Part 71 because these provisions are properly incorporated in the carrier restrictions imposed by the Department of Transportation.

Two comments suggested that the phrase "Account must be taken of the behavior of materials under irradiation" be clarified and quantified, perhaps in a regulatory guide, or deleted from Part 71. Although there is no regulatory guidance now available relating this requirement to transportation packages, it is clear that any effects of irradiation

on materials used in the package must be taken into account. These effects could be the accelerated aging or embrittlement of elastomers or elastics and may result in requiring a frequent change of gaskets, for example.

One comment suggested the performance requirement of § 71.43(f) be changed to include a numerical sensitivity for the requirement that there be "no loss or dispersal of radioactive contents" as a result of subjecting a package to the specified normal conditions of transport. The equivalent paragraph in the IAEA regulations for Type A packages is paragraph 537, and does not contain a numerical sensitivity. Paragraph 548, of IAEA Safety Series #6, is the equivalent of 10 CFR 71.51, for Type B package leaktight sensitivity. Both those provisions require Type B packages to be leaktight to a sensitivity of 10^{-6} A₂/h.

Three comments noted that IAEA no longer prohibits continuous venting of packages in its 1985 edition and urged the NRC to allow the practice domestically for Type B packages. The commenters argued that although NRC took a strong position, in the preamble to the proposed rule, that continuous package venting is "poor engineering practice," NRC did not explain why. The commenters noted that DOT regulations do not prohibit continuous venting for Type A packages, leaving the acceptability of continuous venting to be decided by performance requirements. The commenters stated that in some cases it would make good sense to allow continuous venting to provide pressure equalization and discharge of organically generated hydrogen gas.

NRC is continuing its ban on continuous venting of Type B packages for the following reasons:

1. Venting of a package containment system during normal conditions of transport defeats the purpose of the containment system;
2. It is practical to design packages that do not rely on venting, to relieve pressure under normal conditions of transport;
3. The use of a vent does not necessarily prevent the generation of potentially flammable or explosive gas mixtures; and
4. The reliability of filters under temperature extremes, varied operating conditions, and sustained service has not been established.

Two comments stated that Mo-99/Tc-99m radiopharmaceutical generators are open to the atmosphere to allow changes in ambient pressure and that the generators do not vent radioactive material. The comments recommended

that the prohibition against venting be limited to venting radioactive material only and that NRC continue current practices.

NRC believes these comments arise from concern over the reduction in the A₂ quantity for Mo-99 from 20 curies to 13.5 curies in the proposed rule. NRC recognizes that the shipment of Mo-99/Tc-99m generators is a special case, and is retaining the 20 curie A₂ value for Mo-99, to permit the continuation of current practices.

Section 71.47 External Radiation Standards for All Packages

NRC used the term "accessible external surface" in its proposed rule for determining radiation levels on package surfaces, whereas DOT used the term "external surface" in its proposed rule. Four comments argued that the NRC and DOT regulations for radiation level limits on package surfaces should be identical. Most believed that a limit on accessible surfaces was the more reasonable standard.

DOT has indicated that it is considering a petition for rulemaking to add the word "accessible" to its radiation level regulations and will consider that complex issue in a separate action. Pending completion of the DOT separate action, NRC has deleted the word "accessible" from this section of the final rule but does not intend to alter its practices regarding this provision.

One comment stated that this paragraph tends to be confusing in that it establishes a limit of 2 mSv/h (200 mrem/h) for package surface radiation levels, yet § 71.47(b)(2) seems to state that packages transported on a flatbed trailer can exceed 2 mSv/h (200 mrem/h), provided the radiation level at the planar edges of the trailer is less than or equal to 2 mSv/h (200 mrem/h).

Section 71.47 establishes a generally applicable 2 mSv/h (200 mrem/h) Package surface radiation-level limit. The section further establishes that, if a package is shipped as exclusive use, the radiation level may exceed 2 mSv/h (200 mrem/h), provided the applicable provisions of paragraphs (a) (with respect to Transport Index) through (d) are met. Paragraph (b)(2) restricts the radiation level at any point on the vertical planes projected by the outer edges of a flat-bed style vehicle to 2 mSv/h (200 mrem/h) (the same limit imposed in paragraph (a) for the outer surfaces of closed transport vehicles). Thus, provided packages are shipped as exclusive use, external radiation levels may exceed 2 mSv/h (200 mrem/h) at the surface of packages on flatbed trailers, but not at the outer-edge planes of the vehicle.

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Section 71.51 Additional Requirements for Type B Packages

One comment suggested that the clarifying provision following paragraphs 548(a) and (b) of IAEA regulations be added to Part 71 for consistency. The clarifying provision pertains to allowable releases of radioactive material from a package containing a mixture of radionuclides. This is the case, for example, with spent nuclear fuel casks. That clarifying provision has been added.

Section 71.52 Exemption for LSA Packages

Twelve comments expressed concern that the proposed Part 71 affords only a 1-year delay in applying the new LSA rules. NRC established the 1-year delay to give the industry an opportunity to design and build the Type B waste casks that would be required under the new rules. The comments uniformly argued that 1 year was not a sufficient period of time to design a waste cask, to have it reviewed and approved by NRC, and to fabricate an adequate number of casks, to approved designs, that satisfy the needs of the new LSA rule. The commenters differed in how long they thought that process would take, varying over 2, 3, and 5 year periods. NRC agrees with the thrust of this comment and has established the exemption period at 3 years. Thus existing packagings may be used for 3 years and new packagings may be fabricated from existing designs for 3 years.

A consequence of establishing the IAEA LSA/SCO package limit as the delineator between NRC and DOT regulation of LSA and SCO packaging [see § 71.10(b)(2)] is that, after the 3 year exemption period, LSA will be shipped either in DOT authorized packagings, or in NRC certified Type B packagings. Accordingly, NRC is discontinuing the practice of certifying Type A LSA packages. NRC has therefore not adopted a proposed exemption (§ 71.52(a)) that only would have applied to NRC certification of new Type A LSA package designs.

One comment stated that the demand for waste casks would rise until 1993 and then fall again because few of the low-level radioactive waste disposal site compacts will permit disposal access. Vendors will hesitate to invest in casks that will not be used after 1993 and waste will need to be stored onsite.

NRC is unwilling to accept this proposition and believes that as long as NRC specifies the requirements for transportation of waste, given adequate

time, industry will continue to develop disposal options.

One comment argues that the specific reference to § 71.43(f) should be deleted because it is included in the broader reference to §§ 71.41–71.47.

Section 71.52 exempts exclusive use LSA and SCO packages from the additional requirements for Type B packages for a period of 3 years from the effective date of the final rule. These LSA packages are still subject to other requirements that apply to all packages. The referral to these other package requirements includes §§ 71.41–71.47, plus a specific reference to. An argument could also be made for deleting the entire reference because those requirements apply regardless of the reference in this section. However, NRC chose to include the reference in § 71.52 as a reminder that the exemption is only from § 71.51, not from all packaging requirements. NRC believes the reference to § 71.43(f) (normal conditions of transport tests) is important and has decided that it will be retained.

One comment suggested that SCO be included within the scope of § 71.52, and that the 2A₁ limit be included in the section for clarity. NRC agrees with the comment and has made the clarifications, substituting the IAEA LSA limit for 2A₁.

Section 71.53 Fissile Material Exemptions

One comment suggested spelling out the word "liter" instead of using "l" as the abbreviation. Considering the typing errors caused by the use of that abbreviation, the final rule spells out the word "liter" wherever it appears.

Section 71.55 General Requirements for Fissile Material Packages

One comment suggested that by adding the word "full" to the water reflection criterion of § 71.55(b)(3), the NRC has added more cost with no apparent benefit " * * * since transport limits already take this consideration into account." The latter part of this comment probably refers to the "transport index" controls that limit the number of packages which can be transported and stored together, but do not consider the safety of an individual package in isolation. Addition of the word "full" in § 71.55(b)(3) is a matter of clarification. NRC has always required "full" reflection wherever reflection is required. IAEA regulations required "full" reflection in the 1973 edition, and go a step further in the 1985 edition, to define "full" as "water 20-cm thick (or its equivalent)." NRC has retained the word "full," in

§ 71.55(b)(3), and has added the word "full," in § 71.55(e)(3), for consistency.

A commenter agrees that the proposed Part 71 begins to simplify the system of shipping fissile material but that most of the difficulties still exist. The commenter advocates development of "a system of performance-oriented packaging," to reduce the current complexity of the "design-oriented package choices." NRC agrees that there are a number of radiation control design requirements that apply to the fissile material packages as well as to packages of other radioactive material. However, NRC views the criticality control provisions as performance-oriented rather than design-oriented. NRC must specify the conditions against which the package must be designed. Without the environmental tests and package objectives, there would be no level of protection against which to design packages.

Section 71.61 Special Requirement for Irradiated Nuclear Fuel Shipments

One comment recommended that the rule clarify that the deep immersion test is to be applied to an otherwise undamaged package. This important detail is implied, but not specifically stated. The Commission agrees and has made that clarification.

In the final rule, this section has been modified to require that the external pressure test be applied directly to the containment system of a package. NRC does not believe the external structure should play a part in helping the containment system of a package withstand an external pressure test and has chosen to ignore its existence in specifying the requirement.

A comment recommended that the word "rupture," as used in this requirement, be defined as a gross structural collapse and not just an leakage of water. Although the word "rupture" in the proposed rule did mean gross structural collapse, NRC has since decided that the term "rupture" cannot be determined by engineering analysis. NRC has decided to change the acceptance criteria for the deep immersion test from "rupture" to "collapse, buckling, or leakage of water."

A comment stated that this requirement should include the 1-hour time specification included in the IAEA requirement to avoid later misinterpretation of the test. The NRC agrees that adding the 1-hour test specification would help prevent confusion between IAEA and domestic regulations, and has included the time specification.

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A comment noted that the term "at least" is used two times in the proposed requirement, thereby creating an opportunity for misinterpretation. Although the term is used in the IAEA text, the NRC agrees with the commenter that it serves no useful purpose and has deleted the term.

A comment stated that the deep-water immersion test should be clarified to ensure that an engineering evaluation is an acceptable alternative to a physical test because an actual 200-m test would be costly and difficult. NRC believes it is clear that an engineering evaluation is acceptable because the equivalent external gauge pressure is specified in the text of the requirement. The provisions of § 71.41(a) are intended to allow the use of engineering evaluations when they are reasonably applied.

The remaining three comments relating to this section all deal with transition periods and special provisions for casks for which there will be no further fabrication and that are not used internationally. The earlier portion of this preamble dealing with the provisions of § 71.13 presents the NRC view on these matters.

Section 71.63 Special Requirements for Plutonium Shipments

Four comments argued that the extension of this provision to radionuclides other than plutonium is unjustified and that the provision, even without the extension to other radionuclides, differs from IAEA rules and is inconsistent with the principles of IAEA rules. Two of the commenters argued further that the existing provisions, if examined in the light of current regulatory analyses, probably could not be justified.

NRC recognizes that some requirements have been added to the regulations over the years strictly on the basis of prudent judgment. Because the basis for current rules is not a part of this rulemaking action, NRC will simply refrain from extending the present rule to other radionuclides.

One commenter argued that the rule should be rewritten using multiples of the A_2 values, not only to define radionuclides subject to the rule, but also to define the level of activity at which the extra requirements come into effect. Because the extension to other radionuclides is being withdrawn, the inclusion of A values does not appear to improve the requirement.

Section 71.71 Normal Conditions of Transport

Three comments noted that the provision of IAEA's paragraph 528 requiring consideration of a temperature

range from -40°C to $+70^{\circ}\text{C}$ for the components of the packaging is not reflected in Part 71. NRC omitted this provision because NRC does not want to limit the high end temperature consideration to 70°C because that would imply that $+70^{\circ}\text{C}$ is the highest temperature that has to be considered for package design. This does not take into account the considerably higher temperatures resulting from decay heat in certain Type B packages.

Three comments noted that 10 CFR 71.71(c)(4) prescribes an increased external pressure specification of 140 kPa absolute but IAEA regulations do not have that exact requirement. NRC believes there is a need for an external pressure test for normal conditions to ensure that a package filled at low pressure or high altitude will withstand an external pressure increase. The additional pressure test has been retained.

Three comments observed that § 71.71(c)(7) states that the free drop test be conducted between 1.5 and 2.5 hours after the conclusion of the water spray test but the same requirement is not included in the IAEA regulations. The IAEA rules, however, do include restrictions, in paragraph 620, on the timing of the mechanical tests after the water spray test. NRC has retained the water spray test as is and believes the NRC test meets the intent of the IAEA test.

One comment noted that with the deletion of the fissile classes, the corner drop test, which was required only for Fissile Class II packages, is proposed to be applied to all fissile packages. The commenter argued that for a large and heavy package, such as a spent fuel shipping cask, "it is considered highly implausible for a package to undergo a one-foot corner drop as a normal condition of transport. Only a free drop with the package in its normal orientation should be specified as a normal condition of transport for large and heavy packages, therefore saving valuable analysis effort and time."

NRC agrees with the comment and has deleted the corner drop test for fiberboard, wood, or fissile material rectangular packages weighing more than 50 kg (110 lb), and for fissile material cylindrical packages weighing more than 100 kg (220 lb). For these packages, NRC does not believe that the corner drop tests are significant in developing a safe fissile material package.

Section 71.73 Hypothetical Accident Conditions

One comment stated that reversing the order of the two immersion tests in

§§ 71.73 (c)(5) and (c)(6) would restore the order of the tests, which must be run consecutively, and would therefore clarify the text. NRC agrees and has made the change.

One comment recommended that the temperature extremes specified for the initial test conditions in § 71.73(b) be given a reasonable tolerance because ambient air temperatures cannot be controlled. NRC agrees that temperatures, as with other required parameters of the test conditions, cannot be accurately controlled. NRC's position, however, is not to establish tolerances, but to require that the effects of test conditions different from those specified be analyzed as part of the overall evaluation. Every analysis would then be normalized to the same set of specifications.

One comment recommended that the word "single," in the second line of the thermal test in § 71.73(c)(4), should be "simple". NRC agrees and has made that change.

Two comments asked that NRC include some information as to how the effects of solar radiation should be treated. One comment stated, "The solar insolation can be a significant factor and should be consistently evaluated." Others have argued that the effects of solar insolation are insignificant compared with the thermal effects of the fire test and should be ignored.

NRC adopts the view of the thermal experts who participated in developing the IAEA regulations. Those experts thought the effects of solar radiation may be neglected before and during the thermal test but that such effects should be considered in the subsequent evaluation of the package response.

One comment recommended the development of guidance on how designers should interpret the revised thermal test requirement. Although there is guidance provided in the IAEA's companion documents to its transportation regulations (IAEA Safety Series No. 7, "Explanatory Material for the IAEA Regulations for the Safe Transport of Radioactive Material—1985 Edition," and IAEA Safety Series No. 37, "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material—1985 Edition"), further guidance may be necessary. If so, it is the industry that can best propose guidance, based on its capabilities. If coordinated under the auspices of the American National Standards Institute (ANSI), Committee N-14, with NRC representation, there is a good chance that a consensus standard could be developed that could be endorsed by NRC as a satisfactory means to satisfy regulatory requirements.

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One comment stated that packages that are subjected to the crush test should not also be subjected to the 30-foot free drop test, as required in the proposed rule. Instead, consistent with IAEA, the crush test should be in lieu of the 30-foot free drop test.

NRC believes that the crush test and the free drop test impart different types of loadings onto the package. Having sufficient crush resistance for the crush test does not ensure the adequacy of the package under the inertial loadings that occur during the 30-foot drop tests. NRC believes that it is important for packages to have resistance to impact and that the crush test should not be a substitute for the impact test.

One comment stated that a crush scenario is not likely during "dedicated" shipments because heavy loads are not placed above the shipment at any time during transport. The comment questioned the applicability of the test for dedicated shipments, and requested that at least an engineering evaluation be allowed as an alternative to a physical test. NRC has made it clear (see § 71.41) that appropriate analyses may be used to demonstrate the ability of a package to meet crush test conditions.

Section 71.75 Qualifications of Special Form Radioactive Material

One comment indicates that changes in § 71.75(a) from the current rule have changed the concept of special form from being a provision for special properties of the radioactive material contents of the package to being a provision for special properties of the package—a change from qualifying a "special form source" to qualifying a "special form package."

NRC regrets the confusion, but intended no substantive change to the concept of special form. Special form criteria in this final rule have been brought closer to those of DOT, but still without any basic changes.

One comment noted that the reference in § 71.75(e) [§ 71.75(d), in the final rule], to a standard of the International Standard Organization (ISO) is vague and should be made more specific.

Although the ISO standard could be written in all its detail in Part 71, rather than simply referenced there, most comments over the years have encouraged NRC to have less repetition and more simple references to other requirements.

Section 71.83 Assumptions as to Unknown Properties

One comment pointed out an error in line 7 of § 71.83, where the proposed rule referred to "known properties",

where it should have referred to "unknown properties." That error has been corrected.

Section 71.85 Preliminary Determinations

One comment recommended that the term "durable" in the context of "durably mark the packaging," as in § 71.85, be defined in terms of the conditions that the markings on the packaging must be able to withstand. When developing its regulations, NRC must decide at what level of detail they are to be written. Sometimes that level of detail is changed as a result of experience if a widespread misuse of a standard becomes known because of a lack of detail. NRC is not aware of any problem with the term "durably," even though it has been used since 1968 in the preliminary determinations section. In the absence of a significant problem, NRC prefers to leave the term as is.

Section 71.87 Routine Determinations

One comment recommended that NRC's Table V "Removable External Radioactive Contamination Wipe Limits," be used by DOT in place of its Table 11. NRC notes that the only significant difference between the two tables is that the term "low toxicity alpha emitters" is replaced by its definition in the NRC table. The NRC final rule simply refers to the DOT requirement (49 CFR 173.443) for maximum permissible contamination limits.

Section 71.88 Air Transport of Plutonium

One comment recommended that the forward tie-down specification of 9 g detailed in § 71.88(c)(2) be reduced to 1.5 g for plutonium packages transported on a Boeing 747 aircraft. The reason for this recommendation has to do with the 14 CFR 25.561 regulatory requirement of the Federal Aviation Administration (FAA), that the supporting structure of an airplane must be designed to restrain, up to specified inertial forces, including 9-g in the forward direction, " * * * each item of mass that could injure an occupant if it came loose in a minor crash landing." NRC, in prescribing tie-down requirements for plutonium packages in aircraft, took note of the supporting structure requirements of the FAA and required a 9-g tie-down system for the package on the main deck of the aircraft. The Boeing 747 cargo aircraft, however, with no passengers and the cockpit located above the main deck, is not subject to the requirements of 14 CFR 25.561 because there are no occupants to injure if " * * * the package came

loose in a minor crash landing." Thus, the Boeing 747 "Weight and Balance Manual," DG-13700, shows a load factor of 1.5 g in the forward direction.

The purpose of the NRC tie-down requirement was not to protect occupants of the aircraft from cargo that has come loose in a minor crash landing. Therefore, the comparison with the FAA supporting structure requirement is not germane. The purpose of the NRC requirement was to protect the plutonium package from the uncontrolled potential for damage inherent in having the package unrestrained in a crash landing.

Paragraph (c) of § 71.88 proposed a requirement that the licensee make special arrangements with the carrier on where to place the plutonium cargo in the aircraft, how to tie it down, and what restrictions are to be placed on other cargo. Recognizing that these restrictions would be more appropriately placed directly on the carrier rather than through the shipper, the DOT has placed these restrictions in its air carrier regulations (§ 175.704 of 49 CFR Part 175, "Carriage By Aircraft.") These regulations are now referenced in § 71.88.

Section 71.95 Reports

All three public comments on this section were directed at the newly proposed provisions of paragraph (c), which require a 30-day report of " * * * instances in which the conditions of approval in the certificate of compliance were not observed in making a shipment."

One comment requested clarification whether § 71.95(c) applies to shippers or receivers.

The scope of Part 71 (§ 71.0(c)) makes the regulation applicable only to shippers of radioactive material. Therefore, § 71.95(c) applies only to shippers of radioactive material. However, shipment deficiency may be detected by the receiver of the shipment. If the receiver reports that deficiency to the shipper, the shipper is obligated to report it to NRC. Further, note that 10 CFR Part 21, "Reporting of Defects and Noncompliance", is applicable to receiving facilities.

The other two comments dealt with the substance of the event that would prompt the report. One suggested the regulation be more specific on conditions that would require a report. The second comment suggested that the report include the consequences of the deficient shipment such as radioactive contamination, a loosened sealing cap, etc.

Although both of these suggestions have merit, neither has been

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incorporated in the final rule. The purpose of the requirement is to provide feedback to NRC on quality assurance program effectiveness by an indication of the number and type of packaging and other mistakes and on the safety significance of those mistakes by an indication of the mistake consequences. NRC believes the reporting requirement should retain its broad scope. A large number of reports is not expected. NRC also believes that individual follow-up is the only reasonable way to uncover any procedural deficiency that might cause mistakes.

One comment questioned whether this type of report is important enough to be required within 30 days. NRC judges that the timing is about right, and expects the staff's review of submitted reports to be completed within a similar time frame.

Section 71.97 Advance Notification of Shipment of Irradiated Reactor Fuel and Nuclear Waste

Of the five comments submitted on this notification requirement, two suggested changing the value for the number of curies in § 71.97(b)(3)(iii), so it corresponds to the same limit in the regulations of DOT and IAEA. That change has been made.

The other three comments stated that this requirement was not clearly expressed. The requirement has been reorganized in the final rule, and consists of the following parts:

1. Paragraph (a) provides a broad general requirement that licensees pre-notify governors of States of any shipments of radioactive material going to, through, or across the boundary of the State;

2. Paragraph (b) limits the prenotification requirement to certain types of shipments. All the conditions of paragraph (b) must be satisfied for the prenotification requirement to apply. The licensed material must be required to be in a Type B package, limiting the requirement to shipments of relatively high potential hazard. The shipment must be destined to a disposal site or to a collection point for transport to a disposal site, further limiting the requirement to waste material. The quantity of radioactive waste in a single package must exceed the limits specified in the DOT regulations for highway-route controlled quantities. Lastly, for irradiated fuel, the quantity contained in a single package must be less than that subject to the similar advance notification requirement of 10 CFR 73.37(f).

3. Paragraphs (c), (d), (e) and (f) contain the details for timing,

information in the notification, revisions, and cancellation.

One comment noted that from the wording in § 71.97(a), a reader would expect to find exceptions in § 71.97(b). The comment notes that the provision does not contain exceptions. NRC agrees with this comment and has revised § 71.97(a) for clarity.

One comment questioned the value of proposed § 71.97(b)(4) [§ 71.97(b) in the final rule] which required that " * * * the quantity of irradiated fuel is less than that subject to advance notification requirements of § 73.37(f) of this chapter." Paragraph 73.37(f) refers to a separate part of the Commission's regulations, 10 CFR Part 73, "Physical Protection of Plants and Materials," and imposes an advance notification requirement for irradiated fuel shipments similar to the one under discussion. The scope of Part 73 (see § 73.1(b)(5)) limits its applicability regarding shipments of irradiated reactor fuel to " * * * quantities that in a single shipment both exceed 100 grams in net weight of irradiated fuel, exclusive of cladding or other structural or packaging material, and have a total radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding." If the quantity of irradiated fuel in a shipment exceeded the quantity specified in § 73.1(b)(5), the notification would be made under § 73.37(f). If not, the notification would be made under § 71.97. The proposed provision in § 71.97(b)(4) was intended to prevent duplicate notifications for some shipments.

The final comment on § 71.97 included a clear rewrite of § 71.97(b) that has been used in its entirety in the final rule.

Comments on Appendix A

Five comments supported the inclusion of new radionuclides in Table A-1 of Appendix A as useful and justified. Five other comments pointed out errors and inconsistencies between NRC and DOT for the A_1/A_2 values in Table A-1. These inconsistencies have been corrected in the NRC and DOT final rules.

Three comments recommended a grandfathering provision for the continued authority to transport molybdenum (Mo) 99/technetium (Tc) 99m generators, in Type A packages, with radioactivity between the current A_2 value of 20 Ci and the new A_2 value of 13.5 Ci for Mo-99. The lower A_2 value is the result of a new dosimetric model, for beta-emitting radionuclides, to address skin contamination. In the preamble to the NRC proposed rule, the

NRC noted, with respect to the changes in the A_1 and A_2 values:

Based on our most current knowledge of radioactive material shipments in the United States, the economic impacts of these changes are not likely to be large. However, any situations where a potential exists for significant economic impacts as a result of changes in the A_1 or A_2 values should be brought to the NRC's attention in public comments.

NRC agrees that this is a situation where health care in the United States could be significantly impacted as a result of forcing the larger quantity Mo-99/Tc-99m generators now transported in Type A packages into Type B packages. In view of the favorable experience over the years with these generators, NRC and DOT will allow the continued domestic transportation of generators that contain up to 20 Ci of radioactive material in Type A packages.

Two similar proposals to grandfather the transportation of carbon-14, phosphorus-32, sulfur-35, and iodine-125 at existing levels were not as persuasive and have not been adopted. The decrease in A_1 and A_2 values would apparently force many shipments out of the "limited quantity" category, where they are excepted from specification packaging, shipping papers and certification, and marking and labeling requirements, and into the "Type A" category.

Although there are clearly more packaging and communication requirements associated with the "Type A" category than with the "limited quantity" category, NRC does not view that change as creating the same economic impact as a change from the "Type A" to the "Type B" category.

One comment suggested that the radionuclides einsteinium-253 and einsteinium-254 be added to Table A-1 because shipment of those transuranics are increasing in number and the default values are not expected to be adequate. NRC has added those radionuclides and will also propose them for addition to the IAEA regulations. Until they are included in IAEA Safety Series No. 6, however, multilateral approval is required for international shipments. This limitation is identified by footnote in Table A-1.

One comment objected to having to obtain NRC approval of A_1/A_2 values that are not in Table A-1. In addition to NRC approval, international shipments require multilateral approval of A values that are not included in the IAEA regulations by each country through or into which the consignment is to be transported. The development of A values may not be a simple matter, requiring consideration of daughter

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radionuclides and differing radioactive emissions. Although a competent health physicist or nuclear engineer should not have too much difficulty determining an A value, NRC must assure that a system exists to protect against faulty determinations. Use of the conservative A values from Table A-2 does not require regulatory approval.

One commenter questioned the unlimited values, for A₁ and A₂ in Table A-1, for uranium-235 enriched less than 5 percent. The comment argued that U-235 is a fissile material and the unlimited values may not be appropriate. The A₁/A₂ values are for radiological, not fissile, considerations. The A₁/A₂ values set the maximum quantity of radioactive material that can be shipped in a Type A package (except for LSA); other package characteristics, such as heat generation, weight, criticality, external radiation, etc., can further limit the quantity of radioactive material in that Type A package. Limitations with respect to fissile characteristics, for example, are addressed in §§ 71.53, 71.55, and 71.59. NRC has decided to add a clarifying note, currently in the IAEA regulations, to the A₁/A₂ Table in Appendix A of Part 71. The Appendix A note reads "Where values of A₁ and A₂ are unlimited, it is for radiation control purposes only. For nuclear criticality safety, some materials are subject to controls placed on fissile material."

Finally, one comment suggested that we eliminate the specific activity column from Table A-1. The comment argues that "Specific activity information is not required or explained in the regulations, and it is difficult to keep the information accurate."

Although the NRC is in basic agreement with the comment and would have no problem in eliminating the specific activity data from Part 71 if there were a good source of comparable data available for the times it is needed to implement the transportation regulations. NRC is not familiar with any good substitute source. Though IAEA Safety Series No. 37, "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (1985 Edition)," third edition, published in June 1987, includes a table of half-lives and specific-activities, there is no indication yet of a system of periodic reviews that would keep that information up to date.

Comments on Draft Regulatory Analysis

Ten persons commented on the impacts associated with the proposed changes to limit the content of LSA/SCO packages to 2A₁. The main thrust of

these comments is that the impacts are much greater than presented. In part in response to these comments, NRC has adopted in the final rule the IAEA LSA/SCO package limit of 10 mSv/h (1 rem/h) at 3 m, in lieu of the proposed 2A₁ limit.

Because the NRC data base for determining the additional shipments expected to be caused by the proposed rule dated back to 1980, and because a clear preference was developing in the public comments for the IAEA radiation level limit rather than the 2A₁ limit, NRC repeated its analysis using more recent data. An NRC contractor gathered 1989 data from the 3 shallow land burial facilities for all waste shipments of resins, evaporator bottoms, and filter media. The contractor analyzed the characteristics of those 4600 Type A cask shipments and found that approximately 150 of those shipments would have exceeded the IAEA limit. NRC assumes that each shipment exceeding the limit is split into 2 shipments due to the smaller capacity of Type B packaging. Thus 150 additional shipments are caused by the LSA limit.

The impacts of preparing additional packages of LSA waste for shipment and receiving those additional shipments at the burial ground were absent from the draft regulatory analysis. One comment advised the NRC of the results of an exposure study which concluded that the extent of the collective exposure for preparation and receipt of waste casks was approximately 0.5 person-rem per shipment. The NRC noted that half of the 0.5 person-rem per shipment factor multiplied by the 4600 waste cask shipments per year from the new data base corresponds fairly well to a large portion of the 1726 person-rem collective exposure reported for all light water reactors for 1986 under the category "waste processing" by Barbara G. Brooks, NRC, and D. Hagemeyer, SAIC in NUREG-0713, Vol. 8, dated August 1989 (this version was current at the time the contractor prepared the regulatory analysis). On the basis of this data, NRC has accepted the 0.5 man-rem per shipment number as a reasonable estimate. Multiplying that 0.5 man-rem per shipment conversion factor by the 150 additional shipments which the limit of 1 rem per hour at 3 meters would cause, the effect of the limit would be 75 person-rem per year.

Because the IAEA LSA provisions permit a greater quantity of LSA/SCO material to be shipped in a package, fewer packages and shipments are needed to transport a given quantity of material. The estimated burden on industry from the final rule is therefore less than that for the proposed rule. The

NRC draft regulatory analysis dated November, 1987 developed industry costs resulting from a 2A₁ limit on LSA shipments of \$1.7 million per year. These costs consist of package costs and shipment costs resulting from an estimated 311 additional cask shipments per year. Through the same simple modeling used in the older analysis, the new NRC regulatory analysis shows increased dollar costs associated with the 150 additional LSA/SCO shipments of \$1.0 million per year. These estimates include differential package costs and differential shipping and handling costs, annualizing and summing each component. These estimates do not include cost components recognized but not quantified in the public comments as training, procedure revisions, computer program changes and upgrades, insurance premiums, and disposal costs.

There were no significant comments related to the projected number of non-radiological deaths and injuries associated with the increased shipments caused by the new standards.

Agreement State Compatibility

Section 274d.(2) of the Atomic Energy Act of 1954, as amended, requires that before entering into an agreement with any State, the Commission shall make a determination that the State's program is compatible with the Commission's program. Section 274g authorizes and directs the Commission to cooperate with the States in the formulation of standards to assure that State and Commission programs will be coordinated and compatible. The basic objective of NRC's State Agreements Program has been to achieve uniformity among the various programs to the maximum extent practicable recognizing that the States must be allowed some flexibility to accommodate local conditions. Under this Program, procedures have established criteria for better defining compatibility, and for determining the degree to which States regulations must show uniformity with Commission regulations. In practice, the Commission's regulations are categorized as Division 1-4 Rules according to the degree of State regulation uniformity required, as summarized in the following table:

Division	Agreement State regulation uniformity
1	Agreement States are expected to adopt, essentially verbatim, the regulation to provide consistency between Federal and State requirements.

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Division	Agreement State regulation uniformity	Division	Agreement State regulation uniformity
2	Agreement States have the flexibility to adopt similar or more stringent requirements based on their radiation protection experience, professional judgements, and community values.	3	Agreement States should adopt the requirement, but there is no degree of uniformity between NRC and Agreement States required.
		4	Agreement States should not adopt the requirement since these are regulatory functions reserved to NRC.

The final rule does not affect the current compatibility categorization of Part 71 regulations. The following table lists the Part 71 Sections and corresponding rule categorization (Division 1-4):

Division	Section	Title
1	71.4	Definitions.
1	71.5	Transportation of Licensed Material.
1	71.10	Exemption for Low-Level Materials.
1	Appendix A	Determination of A1 and A2.
2	71.12	General License: NRC-Approved Package.
2	71.13	Previously Approved Package.
2	71.14	General License: DOT Specification Container.
2	71.16	General License: Use of Foreign Approved Package.
2	71.81	Applicability of Operating Controls and Procedures.
2	71.85	Preliminary Determinations.
2	71.87	Routine Determinations.
2	71.88	Air Transport of Plutonium.
2	71.89	Opening Instructions.
2	71.97	Advance Notification of Shipment of Irradiated Reactor Fuel and Nuclear Waste.
3	71.0	Purpose and Scope.
3	71.1	Communications.
3	71.2	Interpretations.
3	71.3	Requirement for License.
3	71.7	Completeness and Accuracy of Information.
3	71.8	Specific Exemptions.
3	71.9	Exemption of Physicians.
3	71.91	Records.
3	71.93	Inspections and Tests.
3	71.95	Reports.
3	71.99	Violations.
3	71.101	Quality Assurance Requirements.
3	71.103	Quality Assurance Organization.
3	71.105	Quality Assurance Program.
3	71.107	Package Design Control.
3	71.109	Procurement Document Control.
3	71.111	Instructions, Procedures, and Drawings.
3	71.113	Document Control.
3	71.115	Control of Purchased Material, Equipment, and Services.
3	71.117	Identification and Control of Materials, Parts, and Components.
3	71.119	Control of Special Process.
3	71.121	Internal Inspection.
3	71.123	Test Control.
3	71.125	Control of Measuring and Test Equipment.
3	71.127	Handling, Storage, and Shipping Control.
3	71.129	Inspection, Test and Operating Status.
3	71.131	Nonconforming Materials, Parts, or Components.
3	71.133	Corrective Action.
3	71.135	Quality Assurance Records.
3	71.137	Audits.
4	71.6	Information Collection Requirements: OMB Approval.
4	71.18	General License: Fissile Material, Limited Quantity per Package.
4	71.20	General License: Fissile Material, Limited Moderator per Package.
4	71.22	General License: Fissile Material, Limited Quantity, Controlled Shipment.
4	71.24	General License: Fissile Material, Limited Moderator, Controlled Shipment.
4	71.31	Contents of Application.
4	71.33	Package Description.
4	71.35	Package Evaluation.
4	71.37	Quality Assurance.
4	71.38	Renewal of a Certificate of Compliance or Quality Assurance Program Approval.
4	71.39	Requirement for Additional Information.
4	71.41	Demonstration of Compliance.
4	71.43	General Standards for all Packages.
4	71.45	Lifting and Tie-down Standards for all Packages.
4	71.47	External Radiation Standards for all Packages.
4	71.51	Additional Requirements for Type B Packages.

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Division	Section	Title
4	71.52	Exemption for Low-Specific-Activity (LSA) Packages.
4	71.53	Fissile Material Exemptions.
4	71.55	General Requirements for Fissile Material Packages.
4	71.59	Standards for Arrays of fissile Material Packages.
4	71.61	Special Requirement for Irradiated Nuclear Fuel Shipments.
4	71.63	Special Requirements for Plutonium Shipments.
4	71.64	Special Requirements for Plutonium Air Shipments.
4	71.65	Additional Requirements.
4	71.71	Normal Conditions of Transport.
4	71.73	Hypothetical Accident Conditions.
4	71.74	Accident Conditions for Air Transport of Plutonium.
4	71.75	Qualification of Special Form Radioactive Material.
4	71.77	Qualification of LSA-III Material.
4	71.83	Assumptions as to Unknown Properties.
4	71.100	Criminal Penalties.

Petitions for Rulemaking

Three petitions for rulemaking were filed with the NRC in connection with the rules for transporting LSA radioactive material. The substance of each of the three petitions was essentially the same, to request that NRC exempt LSA materials from its requirements in Part 71.

The petitioners were the Energy Research and Development Administration (now the U.S. Department of Energy) in its letter dated July 23, 1975 (PRM-71-1); ANSI Committee N14, in its letter dated March 10, 1976 (PRM-71-2); and Chem-Nuclear Systems, Inc., in its letter dated November 22, 1976 (PRM-71-4). At the time these petitions were filed, DOT regulated carriers and shippers of small quantities of all radioactive materials (including LSA materials) through provisions in its regulations in 49 CFR Parts 170-189, whereas NRC regulated shippers of fissile material and of larger quantities of other radioactive materials (including LSA materials) through its regulations in Part 71 and its licensing program. All three petitioners argued that the control NRC was exerting over transportation of LSA materials created an inconsistency between NRC regulations and those of the IAEA and should be discontinued. A proposed rule that would have provided the exemption for LSA materials requested in the petitions was published by NRC for public comment on August 17, 1979 (44 FR 48234). Before finalization of that rule, however, a deficiency in the new LSA requirements, as proposed, was recognized so that the entire LSA proposal, including the exemption, was withdrawn. In the interim, the corresponding deficiency in the LSA requirements in the IAEA regulations was recognized and corrected. That correction is discussed under the "major modifications from proposed rule" section of this preamble. This correction

is implemented in both DOT regulations and NRC regulations.

The exemption requested in the three petitions has been superseded by the changes in LSA requirements. The LSA requirements imposed in NRC regulations are an integral part of the NRC/DOT regulatory scheme for LSA materials. This scheme is based on IAEA regulations. There is an exemption provided for LSA materials in § 71.10 that clearly defines the level where NRC regulations impose additional packaging requirements. For the above reasons, NRC has denied the petitions.

Administrative Correction

At about the same time the Notice of Proposed Rulemaking regarding compatibility with IAEA transportation regulations was published for public comment on June 8, 1988 (53 FR 21550), a separate notice of final rulemaking was issued, by NRC, affecting the retention periods for records (53 FR 19240, May 27, 1988). Included in that separate notice were changes to the transportation regulations in Part 71, specifically to §§ 71.105, "Quality assurance program," and 71.135, "Quality assurance records." Because the two rules were being processed at the same time by different organizations, NRC's internal controls failed to recognize that the new quality assurance provisions needed to be incorporated in the June 8, 1988, notice of proposed rulemaking. No written comments were filed with respect to the quality assurance sections proposed, although two phone calls were received advising NRC of its error. The quality assurance changes that were made effective by the final rule, published on May 27, 1988, are included in this final rule.

Finding of No Significant Environmental Impact: Availability

The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment, and therefore an environmental impact statement (EIS) is not required.

The Commission's "Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes," NUREG-0170,³ dated December 1977, is NRC's generic EIS, covering all types of radioactive material transportation by all modes (road, rail, air, and water). From the Commission's latest survey of radioactive material shipments and their characteristics, "Transport of Radioactive Material in the United States," SAND 84-7174, April 1985, it can be concluded that current radioactive material shipments are not so different from those evaluated in NUREG-0170 as to invalidate the results or conclusions of that EIS. Environmental impacts associated with this rulemaking are evaluated in "Regulatory Analysis of Changes to 10 CFR Part 71—NRC Regulations on Packaging and Transportation of Radioactive Material," dated April 1995.

NUREG-0170 established the non-accident related radiation exposures associated with transportation of radioactive material in the United States as 98 person-Sv (9800 person-rem) which, based on the conservative linear

³ Copies of NUREG-0170 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

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radiation dose hypothesis, resulted in a maximum of 1.7 genetic effects and 1.2 latent cancer effects per year. More than half this impact resulted from shipment of medical-use radioactive materials. Accident related impacts were established at a maximum of one genetic effect and one latent cancer fatality for 200 years of transporting radioactive materials. The principal nonradiological impacts were found to be two injuries per year, and less than one accidental death per 4 years. In contrast, non-accident related radiation exposures associated with this rulemaking would be increased by 0.75 person-Sv/y (75.0 person-rem/y), whereas accident related impacts would be decreased by approximately 0.006 person-Sv/y (0.6 person-rem/y). Nonradiological traffic injuries would be increased by 0.06 per year and nonradiological traffic deaths by 0.003 per year (less than 1 accidental death per 330 years). These impacts are judged to be insignificant compared with the baseline impacts established in NUREG-0170.

The environmental assessment and finding of no significant impact on which this determination is based are available, for inspection, at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are also available from the contact listed under the Addresses heading.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, Approval Number 3150-0008.

The public reporting burden for this collection of information is estimated to average 7 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0008), Office of Management and Budget, Washington, D.C. 20503.

Regulatory Analysis

The NRC has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by NRC. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room at 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from the contact listed under the Addresses heading.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This final rule affects NRC licensees, including operators of nuclear power plants, who transport or deliver to a carrier, for transport, relatively large quantities of radioactive material, in a single package. These companies do not generally fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards adopted by the NRC (10 CFR 2.810).

Backfit Analysis

The Commission has determined that the backfit rule does not apply to the Part 71 final rule because the final rule is not a backfit under 10 CFR Part 50.109. However, NRC analyzed the accident-resistant packaging requirement for the specified LSA shipments and found that there is an increase in overall protection to be derived from the requirement and that direct and indirect costs of implementation are justified in view of this increased protection.

The factors normally considered in a backfit analysis are evaluated in the "Regulatory Analysis of Changes to 10 CFR Part 71—NRC Regulations on Packaging and Transportation of Radioactive Material," dated April 1995. That evaluation shows very small changes in accident risks as a result of the adoption of the revision, but some reduction in maximum consequences given an accident. The evaluation shows broad improvement in NRC regulatory consistency with IAEA, at an initial cost of \$1.375 million to industry, and continual annual costs to industry of \$1.0 million (See Table S.1 of Regulatory Analysis). NRC costs are estimated at \$0.463 million.

The continuing costs are associated with the addition of new limits on the quantity of LSA radioactive material allowed in a single transportation package. Internationally, a new limit is

considered to be a necessary safety requirement to limit the consequences of a severe transportation accident involving LSA material.

The one-time costs are chiefly associated with industry upgrading of its package safety analyses to include the proposed new accident crush and immersion tests and with NRC review of those new analyses. The estimated costs are overstated because of the assumption that all licensees using packages approved under earlier regulatory standards would take immediate steps to upgrade the package analyses so the package approvals would reflect approval, under the latest revised standards. Although that is a prudent assumption, absent any reasonable basis for predicting actual licensee reaction, there is little reason licensees would take any immediate action to upgrade their package approvals. Both domestic and international regulations are based on the responsible agency's confidence that packages built to a design approved under earlier standards are adequately safe for continued use, although new package construction to that design would be limited, and international use requires approval by all countries through which the package is to be transported. In actual practice, some package approvals would never be upgraded. Those that would be upgraded would be done over a period of several years as guidance and experience in upgrading become available.

Although the regulatory analysis shows a small reduction in accident risks from the amendments to this rule and some reduction in maximum consequences given an accident, the primary benefit of this rulemaking is to achieve consistency in radioactive material transportation regulations between the United States and the rest of the world. This consistency would not only facilitate the free movement of radioactive materials between countries for medical, research, industrial, and nuclear fuel cycle purposes, but it would also contribute to safety by concentrating the efforts of the world's experts on a single set of safety standards and guidance (those of the IAEA) from which individual countries could develop their domestic regulations. In addition, the accident experience of every country that bases its domestic regulations on those of the IAEA could be applied to every other country with consistent regulations to improve its safety program.

In summary, the effort to make U.S. regulations compatible with those of the IAEA provides major benefits including

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a substantial increase in the overall protection of the public health and safety, and it is associated with short-term and relatively minor costs that are justified in view of this increased protection. This effort is associated with ongoing costs, but the new limit is considered to be a justified safety requirement, to limit the consequences of a severe transportation accident involving LSA material.

List of Subjects in 10 CFR Part 71

Criminal penalties, Hazardous materials transportation, Nuclear materials, Packaging and containers, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, 10 CFR part 71 is revised to read as follows:

61 FR 28723
Published 6/6/96
Effective 4/1/96

10 CFR Part 71

RIN 3150-AC41

Compatibility With the International Atomic Energy Agency; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Correcting amendments.

SUMMARY: This document presents corrections to a final rule that was published September 28, 1995 (60 FR 50248). This action is necessary to correct printing errors in three tables, an inadvertent error in an equation, an incorrect cross-reference, and the inadvertent use of a specialized term.

EFFECTIVE DATE: The final rule became effective April 1, 1996.

FOR FURTHER INFORMATION CONTACT: John R. Cook, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 415-8521.

SUPPLEMENTARY INFORMATION: On September 28, 1995 (60 FR 50248) the NRC published a final rule that revised NRC regulations in 10 CFR Part 71

governing the transportation of radioactive material, to make them compatible with those of the International Atomic Energy Agency.

This document corrects the use of a specialized term in paragraphs (2)(ii) and (3)(i) of the definition of *Low Specific Activity (LSA) material* in 10 CFR 71.4. This document also corrects Tables A-2 and A-3 of Appendix A to Part 71 to remove an extra "x" in the presentation of exponents throughout the tables and the isotope of uranium referenced in footnote 1 to Table A-3.

In addition, this document corrects a typographical error in the Minimum Transport Index equation in 10 CFR 71.18, an incorrect cross-reference in 10 CFR 71.55, and a number of typographical errors in Table A-1 of Appendix A to Part 71.

Each of the errors being corrected in this document was inadvertently included in the final rule for publication in the **Federal Register**.

List of Subjects in 10 CFR Part 71

Criminal penalties, Hazardous materials transportation, Nuclear materials, Packaging and containers, Reporting and recordkeeping requirements.

Accordingly, 10 CFR Part 71 is corrected by making the following correcting amendments:

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS — ENERGY

**PART
72**

**LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE
OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE**

STATEMENTS OF CONSIDERATION

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General
Information

See Part 1 Statements of Consideration

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of
Information

See Part 2 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI
and GPA

See Part 30 Statements of Consideration

53 FR 24018
Published 6/27/88
Effective 7/27/88

General Requirements for
Decommissioning Nuclear Facilities

See Part 30 Statements of Consideration

53 FR 31651
Published 8/19/88
Effective 9/19/88

10 CFR Parts 2, 19, 20, 21, 51, 70, 72,
73, 75 and 150

**Licensing Requirements for the
Independent Storage of Spent Nuclear
Fuel and High-Level Radioactive
Waste**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Waste Policy
Act of 1982, as amended (NWPA)
requires that monitored retrievable
storage facilities (MRS) for spent
nuclear fuel and high-level radioactive
waste (HLW) be subject to licensing by
the Nuclear Regulatory Commission
(NRC). The NRC is adding language to
its regulations in 10 CFR Part 72 to

52 FR 1292
Published 1/12/87
Effective 2/11/87

*Bankruptcy Filing; Notification
Requirements*

Part 30 Statements of Consideration

52 FR 21651
Published 6/9/87
Effective 10/8/87

Changes to Safeguards Reporting
Requirements

See Part 70 Statements of Consideration

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provide for licensing the storage of spent nuclear fuel and HLW in an MRS. The Commission intends to have the appropriate regulation to fulfill the requirements of the NWP in place in a timely manner. The rule would also clarify certain issues that have arisen since Part 72 was made effective on November 28, 1980 and incorporate other changes resulting from public comments received.

EFFECTIVE DATE: September 19, 1988.

ADDRESSES: Copies of NUREG-0575, NUREG-1092, and NUREG-1140 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5282 Port Royal Road, Springfield, VA 22161. A copy of each NUREG is also available for public inspection and/or copying at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Keith G. Steyer or C.W. Nilsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)492-3824 or 492-3834, respectively.

SUPPLEMENTARY INFORMATION: On May 27, 1986, following Commission approval, the proposed revision to 10 CFR Part 72 relating to MRS licensing was published in the Federal Register (51 FR 19106) for comment. The comment period expired on August 25, 1986.

The NRC received 195 comment letters from utilities, engineering companies, State offices, environmental groups, private citizens, and a member of the U.S. House of Representatives. The comment letters from private citizens numbered about 145. (Some of these were signed by several individuals or were submitted on behalf of private business firms.) From the comment letters received, the staff identified 27 separate topics to which specific responses were directed. Comments were also received which addressed the original rule, not the proposed amendment. In response to the comments, several changes have been made to the proposed rule. The majority of these changes are mainly clarifying in nature.

In order to provide sufficient space to accommodate possible future amendments to Part 72, the sections of the final rule have been renumbered. To aid the reader in following the discussion of comments in the preamble of the final rule, each reference to a specific section of the final rule is followed by a bracketed reference to the parallel section of the proposed rule.

A compilation of the issues raised as a result of public comment and the accompanying Commission response follow:

1. Backfitting

Comment: Several commenters indicated that the proposed rule should incorporate the sense of the reactor backfitting rule set out in 10 CFR 50.109.

Response: Although these storage facilities are not like reactors but are, for the most part, static by nature with very little need for design changes, the staff has revised the backfitting requirements of 10 CFR 72.62 (§ 72.42). The change is being made to conform § 72.62 (§ 72.42) more closely to § 50.109 as modified by the court decision in *Union of Concerned Scientists, et al., v. U.S. Nuclear Regulatory Commission, et al.*, Nos. 85-1757 and 86-1219, 824 F.2d 108 (U.S.C.A.D.C. August 4, 1987).

2. Opportunity for Hearing Prior to the First Receipt of Spent Fuel or High-Level Radioactive Waste (HLW)

Comment: A new proposed § 72.46(c) (§ 72.34(c)) was added to 10 CFR Part 72 specifically providing that the Commission may, upon its own initiative, issue a notice of opportunity for hearing prior to the first receipt of spent fuel or high-level radio-active waste at an MRS if it finds this to be in the public interest. In the supplementary information in the May 27, 1986 Proposed Rule, the Commission indicated its own considerations on this topic and expressed particular interest in receiving public comment on (1) the need to make a finding before MRS operation that construction conforms to the license application, (2) provisions for second stage hearing rights to address specific new issues which could not have been litigated at the first stage and/or new information which has been revealed since issuance of the license, and (3) the format of the hearing, if held. Of the comment letters that addressed these points, some expressed no preference, some favored the provisions, some thought the provisions were unnecessary.

The principal reasons given by proponents of these provisions are that the public will have more confidence that the MRS will be operated safely and that there should be a clear opportunity to examine new issues which could be raised. Other comments of proponents were that the Department of Energy has had poor public performance in the past, that the degree of hazard is similar to nuclear power reactors which require a two-stage process, and that the opportunity for a second hearing could be an appropriate time to examine technical/financial information. Additional comments suggested that the rule require a second mandatory hearing and that funding be provided for nonprofit groups to participate in a second hearing.

On the topic of a finding it was suggested that (1) criteria be set forth for any finding the Commission may make, and (2) the NRC inspections should

certify quality assurance and completeness of construction in an inspection report prior to initiation of operation. One comment suggested that start-up of the MRS should be linked to the repository authorization as an issue at a second hearing.

The principal reasons given by those opposed to the new provisions for a second hearing were that (1) it would cause unnecessary delay, (2) the Commission's regulations in 10 CFR Part 2 were sufficient to examine any new issues, (3) the NRC's normal systematic inspections are adequate to assure that construction was proper, (4) the nature of the MRS is such that all issues could be covered by the opportunity for public review prior to issuing a license and starting construction, and (5) the backfitting provision (§ 72.62 (§ 72.42)) provides additional assurance that significant issues may be raised by staff after the license is issued. Other reasons offered in objection to the new provisions were that (6) there was no basic difference between an MRS and an Independent Spent Fuel Storage Installation (ISFSI), (7) the small amount of solidified high-level waste which could be received could not justify any change in procedure from an ISFSI, and (8) the Safety Analysis Report (SAR) update procedure will assure that any new issue will be known and understood by NRC staff.

Response: The Commission specifically added the new provision and requested comments in order to obtain as complete an understanding as possible of whether or not any benefits would accrue to the public from such a procedure. This was done with full knowledge that the Atomic Energy Act of 1954, as amended, only requires one hearing and that under the procedures in 10 CFR Part 2 the opportunity always exists for any member of the public to bring any new issues to the Commission's attention.

In the comments received from the public there was no indication that there were likely to be any new safety issues brought forward which could not have been fully addressed on the occasion of the hearing held prior to issuance of the license. The licensing process of Part 72 supports one-stage licensing as it requires that all information needed for the licensing action be available and complete before a license is issued, i.e., final design, quality assurance/control procedures, operator training procedures, operating technical specifications, etc. Unlike a reactor license where a construction permit is issued prior to final design, an MRS application for license contains a final and complete design and therefore one-stage licensing is achievable. As to conformance of construction with the application and license, the Commission believes that, unlike reactors, construction of Part 72 type facilities

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will be simple and straightforward. Accordingly, in the Commission's judgment, there will be no need, as part of the safety review prior to license issuance, to require an applicant to "prove" conformance of the as-built facility with the application. NRC would audit construction progress and, in the event some problems were found, enforcement action could be taken to correct them and, if necessary, halt the receipt of spent fuel until they were corrected. In this regard, § 72.82(c)(3) (§ 72.56(c)(3)) provides for establishing an NRC resident inspection program if warranted.

3. Interaction with States

Comment: Comments were received concerning providing of information to State and local governments and their interaction in the licensing process with DOE and the Commission.

Response: Under § 72.200 (§ 72.310) of the proposed rule, the Governor and legislature of any State in which a monitored retrievable storage installation may be located and the governing body of any affected Indian tribe will be provided timely and complete information regarding determinations or plans made by the Commission with respect to siting, development, design, licensing, construction, operation, regulation or decommissioning of such monitored retrievable storage facility. In response to the comment, the Commission will change § 72.200 (§ 72.310) "Provision of MRS Information" to require that the above information will also be provided to each affected unit of local government and to the Governors of any contiguous States. The definition of "affected unit of local government" which has been added to § 72.3 tracks the definition used in the Nuclear Waste Policy Amendments Act of 1987. (Sec. 5002, Pub. L. 100-203, 101 Stat. 1330-227 (42 U.S.C. 10101 (31)).) Participation by persons, including States, in license reviews is as provided for in 10 CFR Part 2, Subpart G.

4. High Burn-Up Fuel

Comment: In response to a 1980 petition for rulemaking, the Commission agreed (51 FR 23233, June 26, 1986) to prepare an environmental assessment on high burn-up fuel. The Commission's response concerning impacts of high burn-up fuel should be provided.

Response: The Commission issued an environmental assessment addressing the subject of high burn-up fuel in February 1988 "Assessment of the Use of Extended Burnup Fuel in Light Water Power Reactors" (NUREG/CR-5009).

The assessment concluded "Environmentally, this burnup increase would have no significant impact over normal burnup."

5. Emergency Planning

Comment: As discussed in supplementary information to the proposed revisions to 10 CFR Part 72 the rule was rewritten to set forth explicit requirements appropriate to an ISFSI or an MRS, rather than refer to Appendix E to CFR Part 50, which is specific to nuclear power reactors. Responders commented on this change. Several thought that there should be a wider dissemination of the emergency plan which an applicant would have to prepare pursuant to the rewritten § 72.32 (§ 72.19), as well as a comment period longer than the specified 60 days. Another responder thought that 60 days was adequate. Other comments were that (1) sabotage of casks and terrorism, sabotage and military attack scenarios should be considered in an emergency plan, (2) a fully developed and tested offsite emergency plan should be developed, (3) the new version of § 72.32 (§ 72.19) implies a need for offsite protective actions which is incorrect, (4) the supplementary information which will accompany the issuance of the final rule should discuss worldwide experience and previous reviews and studies as support for the new emergency planning provisions, and (5) the emergency plan should continue to be the same as that for nuclear power reactors.

Response: The basic concept of emergency planning in § 72.32 (§ 72.19) has not been changed. None of the respondents provided any additional information to the staff or questioned the staff analyses such as to change the basis for the staff's approach to emergency planning for an ISFSI or an MRS. Moreover, in view of the relatively passive nature of facilities for the receipt, handling and storage of spent fuel and high-level radioactive waste, as compared to operating power reactors, emergency plans for ISFSI and MRS need not be equivalent to emergency plans for reactors.

Since the proposed revision of Part 72 was published for comment on May 27, 1986, the NRC has published proposed amendments to 10 CFR Parts 30, 40, and 70¹ which would require certain NRC fuel cycle and other radioactive materials licensees that engage in activities that may have the potential for a significant accidental release of NRC-licensed materials to establish and

¹ Proposed rule on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees, 52 FR 12921, April 20, 1987.

maintain approved emergency plans for responding to such accidents. Although applicable to persons licensed under different parts of the Commission's regulations, the proposed requirements for emergency plans in Parts 30, 40, and 70 contain substantially identical provisions because they are designed to protect the public against similar radiological hazards. The proposed revision of Part 72 as published for comment also requires applicants for an ISFSI or MRS license to submit an emergency plan (see § 72.32 (§ 72.19).) Although the texts of proposed § 72.19 (redesignated § 72.32) and the parallel provisions of the proposed Emergency Preparedness rule are not identical, these provisions have the same purpose and use the same approach. In both cases, the proposed regulations require onsite emergency planning with provisions for offsite emergency response in terms of coordination and communication with offsite authorities and the public. It is therefore appropriate that in both cases these requirements should be expressed in the same way.

Until the Commission promulgates the Emergency Preparedness rule in final form, it is not possible to ascertain exactly the language that should be used. In view of these circumstances and since there is every expectation that this period of uncertainty will be of relatively short duration, we believe the prudent course of action is to reserve § 72.32 (§ 72.19), Emergency plan, in the final rule with the understanding that the text of this section will be promulgated in final form as a conforming amendment when the Commission adopts and promulgates the final Emergency Preparedness rule or shortly thereafter. We should point out that the temporary absence from Part 72 of requirements respecting emergency plans does not present any difficulties from a regulatory standpoint. To date, only three licenses have been issued under Part 72. Two licensees also hold Part 50 licenses and are required to comply with the provisions respecting emergency plans set out in the Part. The Part 72 license held by the third licensee contains conditions relating to emergency planning with which that licensee must comply.

Sabotage, terrorism, and military attacks are not treated as emergency preparedness issues. The Commission's established practice with respect to dangers of enemy action is that the protection of the United States against hostile enemy acts is a responsibility of the nation's defense establishment and the various agencies having internal security functions. Acts other than military are covered under a planning system included in Subpart H of Part 72,

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which contains requirements respecting physical security and safeguards contingency plans that are specifically designed to preclude the occurrence of such acts. The primary purpose of an emergency response plan is to prescribe measures to be taken to mitigate the effects of accidental releases of radioactivity, irrespective of their cause. Thus, in the unlikely event that there should be an accidental release of radioactivity by reason of an act of terrorism or an act of sabotage, protective actions would be taken as prescribed in the emergency response plan, just as they would be taken in the case of accidental release arriving from other causes.

6. Department of Energy as Licensee for the MRS

Comment: Respondents commented on several aspects of the licensing of the Department of Energy for the MRS. One commenter requested that in every instance in which there would be a difference in requirement between the Department and other licensees, that that difference should be specifically defined in Part 72. Other commenters pointed out that the funding for the MRS was from the Nuclear Waste Fund as stipulated in the NWSA and, therefore, the Department should be required, through Part 72, to show how these funds will be adequate for operation and decommissioning. A further commenter questioned the Department's authority pursuant both to Part 72 and its own orders to delegate quality assurance responsibilities to its contractor(s). One commenter suggested that Part 72 should permit revocation or suspension of the Department's license for the MRS since the NRC could not impose civil penalties for license violations.

Response: As discussed in the supplementary information to the proposed revisions to Part 72, the Department of Energy is exempted from certain financial reports, creditor information and financial plans for decommissioning. As pointed out in the comment above, funding for the MRS will be from the Nuclear Waste Fund, separately accountable from public funds. Consistent with the principle of full cost recovery in section 302 of the NWSA (96 Stat. 2257, 42 U.S.C. 10222) this fund will provide all financial resources for the MRS, i.e., licensing, construction, operation and decommissioning. Since DOE is a federal agency and the status of the NWSA waste fund is reported to and reviewed by the Congress yearly, the Commission believes that Congress will assure that adequate funds are available and appropriated for DOE to carry out

its statutory responsibility. Under these circumstances additional NRC oversight is unnecessary and inappropriate.

As to possible conflicts in the licensing and regulatory process between orders and procedures of the Department of Energy and NRC requirements, two government agencies, the commenter provided no specifics and the Commission is not aware of any such conflict. The Department will be provided the same latitude as any other licensee pursuant to § 72.142 (§ 72.101) wherein it is stated that "the licensee may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, but shall retain responsibility for the program."

The Energy Reorganization Act of 1974, as amended, and the Nuclear Waste Policy Act of 1982, as amended, provide that upon authorization by Congress an MRS shall be subject to licensing by the Commission. Accordingly, no exemptions from the provisions of § 72.60 (§ 72.41), "Modification, revocation, and suspension of licenses" and § 72.84 (§ 72.57), "Violation" are shown for the Department. In the exercise of this broad statutory authority and consistent with its customary practice in regulating other Federal licensees, the Commission may impose penalties on the Department if there is sufficient justification. The Commission knows of no other differences between the Department and other licensees for which a change in Part 72 is warranted. (The commenters recommended no specific changes in this area.)

7. Minimum Decay Period (Age) for Receipt of Spent Fuel

Comment: It was noted that there is a seeming discrepancy between the minimum decay period (age) of spent fuel as specified in § 72.2 (one year) and a reference to the environmental analysis in NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees" (five-year decay assumed).

Response: The minimum one-year decay period in § 72.2 is based on assuring the decay of radioisotopes having half-lives on the order of a few days or less. In actuality, the decay periods are likely to be much longer than one year. Accordingly, the NUREG-1140 analyses were based on the more realistic, but still conservative, assumption that five or more years of decay would have taken place for the spent fuel for which an accident in a dry cask was assumed. This is not a discrepancy since different purposes are

being served in each instance. In choosing a nominal decay period of 10 years and a five-year minimum decay period in the design parameters for the MRS the Department of Energy (DOE) is merely exercising its own prerogative to use a longer decay criterion for purposes of fuel receipt. Selection of a five-year minimum decay period also reflects DOE's understanding that the spent fuel to be received at the MRS will already have decayed for periods of time likely to be even much greater than five years at individual power reactor sites. The original analysis for Part 72 was based on one-year decay.

8. Physical Security Plan

Comment: A few commenters were concerned about the proposed change in the requirements of the physical security plan for the Department of Energy in that the Department must provide a certification that it will provide at the MRS "such safeguards as it requires at comparable surface DOE facilities to promote the common defense and security." The concerns were that this was an added requirement imposed only on the Department and that there was no definition of what a "comparable" DOE facility would consist of.

Response: For all licensees physical security plans are designed for two purposes: (1) To protect against sabotage and (2) to promote the common defense and security. The change in the requirements of the physical security plan is intended to be consistent with 10 CFR Part 80, "Disposal of High-Level Radioactive Wastes in Geologic Repositories," wherein it is recognized that the Department already carries these responsibilities for all of its facilities.

The Department in carrying out its responsibility to promote the common defense and security of all its facilities can best identify the surface DOE facilities to which the MRS is most comparable for purposes of physical security without the unnecessary burden of an NRC definition of "Comparable." Comparability in this context is a function of the kinds and quantities of nuclear materials held at the facilities and the potential consequences of theft or sabotage. However, the NRC staff believes that the Receiving Basin for Off-Site Fuel at the Savannah River Plant may be an appropriately comparable facility.

9. Continuous Cask Monitoring Provision

Comment: Several commenters pointed out that the wording of the provision in § 72.122(h)(4) (§ 72.92(h)(4)) for monitoring of storage confinement

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systems was inconsistent with section 141(b)(1)(B) of the NWPA (96 Stat. 2242, 42 U.S.C. 10161(b)(1)(B)) wherein it is required that an MRS facility shall be designed to permit continuous monitoring. Another commenter suggested that the State should participate in the monitoring.

Response: The difference in wording between section 141(b)(1)(B) of the NWPA (96 Stat. 2242, 42 U.S.C. 10161(b)(1)(B)) and § 72.122(h)(4) (§ 72.92(h)(4)) was inadvertent. The staff has corrected the wording of § 72.122(h)(4) (§ 72.92(h)(4)) in the final rule to agree with the NWPA. As to State participation in monitoring, this is a matter to be resolved with the Department or as indicated in Response Number 3.

10. Inspection and/or Monitoring

Comment: In § 72.44(c)(3) (§ 72.33(c)(3)) the words "inspection and monitoring" have been changed to "inspection or monitoring."

Response: The proposed change serves no useful purpose. The degree and method of inspection and monitoring will be dependent upon design and operational limits for specific cases. The words "inspection and monitoring" will be reinstated.

11. Foreign Fuel

Comment: One commenter expressed objection to the processing and storage of foreign spent fuel or HLW at the MRS and stated that it should be specifically prohibited.

Response: The reference to foreign fuel in § 72.78 (§ 72.54) of the proposed rule was limited to material transfer report requirements and was not intended either to restrict or to permit such processing or storage. Section 302(a) of the NWPA (96 Stat. 2257, 42 U.S.C. 10222(a)) does specify only "high-level radioactive waste, or spent nuclear fuel of domestic origin" and therefore the reference to foreign fuel at an MRS will be removed.

12. Tornado Missile

Comment: Commenters have disagreed with the deletion of the exemption regarding protection against tornado missile impact, that is, as expressed in the existing rule, " * * * An ISFSI need not be protected from tornado missiles * * * ". Another commenter who favors the deletion concerning protection from tornado missiles would also have the restriction limiting its scope to " * * * structures, systems, and components important to safety" deleted.

Response: The explanation of the exemption for tornado missiles, set out

in the preamble of the existing rule (45 FR 74693, November 12, 1980) states that radionuclide releases from spent fuel which has undergone at least a year of radioactive decay would not be significant in the event of tornado missile impact, citing an accident evaluation from NUREG-0575 "Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuels" with gaseous radionuclide releases from water pool storage. With the continuing development of dry storage technologies, which include metal casks, concrete silos, dry wells, and air-cooled vaults, the Commission decided the designs should take into account tornado missile protection, unless it is shown that tornado missiles will not have any effect on structures, systems and components important to safety. While offsite gaseous release impacts from fuel rod rupture due to a tornado missile incident would remain insignificant, it is important to assure that design criteria for dry storage designs continue to address maintaining confinement of particulate material. All safety reviews for storage licensed under Part 72, both water pool and dry storage, have evaluated designs with respect to tornado missile impact. Since safety considerations drive the concern with respect to the tornado missile phenomenon, it is not necessary to expand that concern beyond "structures, systems, and components important to safety."

13. Use of Part 50 Criteria

Comment: To expedite the licensing process for facilities proposed on sites which currently possess a 10 CFR Part 50 license, it was proposed that the applicable siting evaluation factors and general design criteria which have been reviewed and approved by the NRC for the Part 50 license be directly adopted for the Part 72 facility without additional review, hearings or approvals. Adequate reviews and approvals have been completed, and any change to those previously approved should be treated as a backfit.

Response: The storage of an increased amount of spent fuel on a reactor site, over that covered under an existing Part 50 license, requires staff action through safety and environmental reviews. In taking this action to authorize additional storage capacity for spent fuel, the staff will apply criteria from Part 50 or Part 72, depending on the type of licensing action being sought. Licensing action for an ISFSI would use criteria contained in Part 72 and Part 50 would be used for amending an existing reactor license. Storage of spent fuel on a reactor site

outside of an existing reactor basin is already regulated under the criteria of Part 72 and these criteria have been used in reviewing applications for additional fuel storage at reactor sites.

14. Cladding

Comment: Opposition is expressed to any lowering of fuel cladding protection, as provided for in the existing § 72.122(h)(1) (§ 72.92(h)(1)).

Response: The revision of this provision (i.e., § 72.122(h)(1) (§ 72.92(h)(1))) addressed confinement of fuel material, which is the purpose of protecting the fuel cladding. The revised provision specifically provides for additional alternative means of accomplishing this objective. This serves to enhance confinement protection capability rather than diminish it.

15. Rod Consolidation

Comment: Comments were received concerning the Department of Energy's plan to consolidate rods from spent fuel assemblies into sealed packages. One commenter suggested inserting the word "chemically" after the word "separated" in the definition of spent nuclear fuel. Another comment suggested that a separate environmental impact statement be prepared on rod consolidation. It was suggested that the NRC give rod consolidation special consideration and that it is not clear at present what requirements the NRC will use for rod consolidation.

Response: Rod consolidation is the most elaborate operation contemplated for the MRS. The Department of Energy in its proposal and elsewhere has indicated its intention to fully develop the rod consolidation process for installation and operation. The rod consolidation system must meet all applicable portions of the general design criteria. There is no precedent for the preparation of an environmental impact statement in connection with a single system of a facility for which a complete environmental impact statement will be prepared. The aspect of rod consolidation will be covered in that statement, as well as in the safety review and evaluation by the staff in connection with the application for an MRS. The NRC does expect to be kept informed by the Department of its developmental activities prior to receipt of an application.

The insertion of the word "chemically" as suggested has been accepted by the staff for the final rule.

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16. Accident Analysis For Two Barriers

Comment: A comment was received regarding engineered barriers such as canisters, "... the design basis accident scenario (i.e., release of gap activity from all fuel contained in a dry cask) should be revised to account for cases in which canister or other engineered barriers are incorporated."

Response: Most cask designs do not incorporate canistering of spent fuel assemblies. Therefore, for purposes of this rulemaking, choice of a lesser accident scenario assuming canistering is not appropriate for a bounding analysis. In a safety review involving a specific design, which incorporates an additional engineered barrier, the design basis accident scenario should, of course, consider this addition in the review analysis.

17. Records

Comment: Comments were received concerning archiving of records; by whom and how long?

Response: The proposed rule is consistent with current NRC policy concerning retention periods for records. The specific details of their physical storage is action taken at time of licensing.

18. Operator Safety

Comment: Comments were received concerning design for ALARA.

Response: The licensee is responsible for meeting the requirements of 10 CFR Part 20 "Standards for Protection Against Radiation," and all its provisions for maintaining ALARA. In addition § 72.24 (§ 72.15) Contents of Application: Technical Information requires applicants for a license to supply information for maintaining ALARA for occupational exposure.

19. MRS Collocation with Waste Repository

Comment: Commenter suggested expanding limitation for collocation with repository to include other facilities.

Response: The collocation restrictions in § 72.96 (§ 72.75) are specifically included in order to comply with sections 141(g) and 145(g) of the NWPA (96 Stat. 2243, 42 U.S.C. 10161(g); 101 Stat. 1330-235, 42 U.S.C. 10165(g)). (See also section 135(a)(2), 96 Stat. 2232, 42 U.S.C. 10155(a)(2).)

20. MRS Collocation with Other Nuclear Facilities

Comment: Commenter was concerned about other nuclear facilities that are not licensed.

Response: The licensing process considers all activities and facilities,

licensed or unlicensed, that could increase the probability or consequences of safety significant events at licensed facilities.

21. Definition of High-Level Radioactive Waste

Comment: Some commenters noted that the definition of "high-level radioactive waste" used in Part 72 was not the same as the definition used in 10 CFR Part 60 and expressed the view that the two definitions should be consistent.

Response: Since it was first promulgated in November 1980 for the purpose of establishing licensing requirements for the storage of spent fuel in an independent spent fuel storage installation, Part 72, unlike Part 60, has always contained a separate definition of spent fuel. In revising Part 72 to provide for licensing the storage of spent fuel and high-level radioactive waste in an MRS, the Commission has revised the definition of spent fuel to conform more closely to the definition set out in section 2(23) of the Nuclear Waste Policy Act of 1982, as amended (96 Stat. 2204, 42 U.S.C. 10101(23)). The Commission has also amended § 72.3 by adding a definition of "high-level radioactive waste" which conforms to the language used in section 2(12) of that Act (42 U.S.C. 10101(12)). The definitions of spent fuel and high-level radioactive waste used in Part 72, though not identical to the definition of high-level radioactive waste used in 10 CFR Part 60 which encompasses "irradiated reactor fuel," are not inconsistent with that definition. It should be noted, however, that as explained in the Commission's advance notice of proposed rulemaking relating to the definition of high-level radioactive waste (52 FR 5992, February 27, 1987), the definition of high-level radioactive waste used in Part 60 serves a jurisdictional function, specifically identification of the class of Department of Energy facilities that, under section 202 of the Energy Reorganization Act of 1974 (42 U.S.C. 5842) are subject to the licensing and related regulatory authority of the Commission.

22. High Level Liquid Waste

Comment: Several commenters were concerned about the storage of liquid High-Level Waste (HLW).

Response: The MRS will be designed and licensed for the storage of irradiated fuel and solidified waste from the processing of fuel. The MRS will not receive liquid HLW and the form of the solid waste stored will be that which is compatible with the requirements for permanent disposal in a repository.

Any liquid wastes generated at the MRS will be handled in accordance with existing regulations.

23. Quality Assurance—Quality Control

Comment: Comments were associated with the apparent difference between the quality assurance criteria proposed and the previous quality assurance criteria.

Response: The proposed rule quality assurance subpart was written to incorporate the previously referenced 10 CFR Part 50, Appendix B quality assurance criteria specifically into Part 72. There was no intent to change the criteria. Minor conforming changes have been made in the final rule.

24. Criticality

Comment: A comment was received concerning the removal of the requirement for verifying continued efficacy of solid neutron poisons.

Response: Several changes have been made to the criticality section of the final rule to make it correspond to other Parts of the Commission's regulations and standard criticality review practices. Verification of solid neutron poisons has been retained. Double contingency criteria and requirements for criticality monitors have been added. It is not the intent of the revision concerning criticality monitors to require monitors in the open areas where loaded casks are positioned for storage as that system is static. Monitors are required where the systems are dynamic.

25. MRS Storage Capacity

Comment: Commenters questioned the MRS storage capacity as stated in the proposed rule in §§ 72.1 and 72.96 (§§ 72.1 and 72.75).

Response: In the proposed rule, MRS storage capacity values are based on the NWPA, as approved by Congress. (See section 135(a)(1)(A), 96 Stat. 2232, 42 U.S.C. 10155(a)(1)(A) and section 114(d), 96 Stat. 2215 as amended by 101 Stat. 1330-230, 42 U.S.C. 10134(d) and section 141(g), 96 Stat. 2243, 42 U.S.C. 10161(g)). In addition, the Nuclear Waste Policy Amendments Act of 1987 provides that the MRS authorized by section 142(b) of NWPA (101 Stat. 1330-232, 42 U.S.C. 10162(b)) shall be subject to the storage capacity limits specified in sections 148(d) (3) and (4) (101 Stat. 1330-236, 42 U.S.C. 10168(d) (3) and (4)). These requirements have been incorporated in new § 72.44(g) which has been added to the final rule.

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26. The Term—"Temporary Storage"

Comment: Comments objected to the removal of the term "Temporary Storage" from § 72.3 Definitions and the removal of the word "temporary" from § 72.2 Scope.

Response: In making these changes, the Commission does not intend to change the scope of Part 72 which relates to the licensing of ISFSI and MRS for the purpose of storage only. Part 72 does not nor is it intended to cover permanent disposal. Accordingly, use of the word "temporary" in the rule is non-definitive and unnecessary.

27. MRS Rule Making

Comment: Many commenters (approximately 150), through the use of form letters or paraphrasing, did not want the MRS in Tennessee, did not support any form of rulemaking until Congress had authorized the MRS through funding appropriation, and made reference to "license it twice."

Response: The Nuclear Waste Policy Amendments Act of 1987 authorizes the Department of Energy to site, construct and operate one MRS and prescribes procedures for the selection of an appropriate site. The Act expressly annuls and revokes the Department's proposal "to locate a monitored retrievable storage facility at a site on the Clinch River in the Roane County portion of Oak Ridge, Tennessee, with alternative sites on the Oak Ridge Reservation of the Department of Energy and on the former site of a proposed nuclear powerplant in Hartsville, Tennessee * * * (Section 142(a), 101 Stat. 1330-232, 42 U.S.C. 10162(a)). The Commission's regulations are promulgated to permit the Commission to carry out its mandate of providing for the health and safety of the public. Except for the siting limitations in § 72.96 (§ 72.75) of the final rule, which, among other things, prohibits an MRS authorized by section 142(b) of NWPA (101 Stat. 1330-232, 42 U.S.C. 10162(b)) from being constructed in Nevada, the Commission's regulations are silent on the location of an MRS. The "license it twice" concept is addressed in Response Number 2.

28. Increase of Licensing Period for the MRS

Comment: Comments questioned the Commission's basis, as described in the statement of considerations for the proposed changes to Part 72, for providing a longer license term for an MRS (40 years) than for an ISFSI (20 years). Comments also included (1) the term should start with the receipt of spent fuel, and (2) ISFSI should also

have a 40-year license term. Further explanation of the basis for the license term was also requested. All of the commenters seemed to concentrate on a license for the spent fuel rather than a license covering a facility for storage.

Response: An MRS as described in the NWPA is intended for storage, but nor necessarily for the same fuel since fuel will continually be moved in and out over the life of the facility in concert with operation of a repository. A longer license term is therefore appropriate for an MRS considering the purpose and mode of operation of the facility.

In contrast to the MRS, the spent fuel stored in an ISFSI at reactor sites or elsewhere will be collected until the Department of Energy waste disposal system is ready for its receipt. The current schedule indicates that this transfer from reactor sites to an MRS could begin to occur within about 10 years. The Commission has in place a license renewal process for ISFSI storage which provides an opportunity for extension of the 20-year license term, with staff reevaluation of safety and environmental aspects of the operation. In any event the systematic inspection program of the Commission wherein the licensee's adherence to all license conditions and technical specifications is continually being examined applies to both MRS and ISFSI storage over the entire period of a license. The Commission will provide a 40-year license term for an MRS in the final rule.

On December 22, 1987, the Nuclear Waste Policy Amendments Act of 1987 (Subtitle A of Title V of the Omnibus Budget Reconciliation Act for Fiscal Year 1988; Pub. L. 100-203, 101 Stat. 1330-227) was approved by the President and became public law. The 1987 amendments authorized the Secretary of the Department of Energy to site, construct and operate one monitored retrievable storage facility subject to certain statutory conditions (sec. 142(b), 101 Stat. 1330-232, 42 U.S.C. 10162(b)). As a result of these changes in the statute, it has been necessary to make certain conforming changes in the text of the final rule. Most of the changes are minor in nature. For example, references have been added to the authority section and conforming changes have been made in the following sections of the rule: §§ 72.22(d)(5), 72.40(b), 72.90(e) and 72.96(d) (§§ 72.14(d)(5), 72.31(b), 72.70(e) and 72.75(d)). A new paragraph (g) has been added to § 72.44 (§ 72.33), License conditions, to incorporate into the Commission's regulations the specific statutory conditions (see sec. 148(d) of the NWPA, 101 Stat. 1330-236, 42 U.S.C. 10168(d)) which must be included in a

Commission license for the monitored retrievable storage installation authorized pursuant to section 142(b) of the NWPA (101 Stat. 1330-232, 42 U.S.C. 10162(b)). For an explanation of these conditions, see 133 Cong. Rec. H11973-75 and S18883-84 (daily ed. December 21, 1987).

Having considered all of the above, the Commission has determined that a final rule be promulgated. The text of the final rule has some changes as noted from the proposed rule.

Finding of No Significant Environmental Impact

The Commission has determined not to prepare an environmental impact statement for the proposed amendments to 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste."

NUREG-0575, "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Reactor Fuel," August 1979, was issued in support of the final rule promulgating 10 CFR Part 72. "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)," which became effective November 28, 1980. On January 7, 1983, the Nuclear Waste Policy Act of 1982 was signed into law. On December 22, 1987, the Act was amended by the Nuclear Waste Policy Amendments Act of 1987 (Pub. L. 100-203, Title V, Subtitle A, 101 Stat. 1330-227). Section 142(b) of the amended Act (101 Stat. 1330-232, 42 U.S.C. 10162(b)) authorized the Secretary of the Department of Energy to site, construct and operate one MRS. NWPA also established procedures which a State or an Indian tribe may use to negotiate an agreement with the Federal Government under which the State or Indian tribe would agree to host an MRS within the State or reservation. Following enactment of legislation to implement the negotiated agreement, the Secretary of the Department of Energy could proceed to evaluate appropriate sites. As in the case of the MRS authorized by section 142(b) of NWPA (101 Stat. 1330-232, 42 U.S.C. 10162(b)), DOE must also obtain an NRC license for an MRS authorized by Congress pursuant to a negotiated agreement. The NRC staff has concluded that although existing 10 CFR Part 72 is generally applicable to the design, construction, operation, and decommissioning of MRS, additions are necessary to explicitly cover the licensing of spent nuclear fuel and high-level radioactive waste storage in an MRS. In August 1984, the NRC published

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an environmental assessment for this proposed revision of Part 72, NUREG-1092, "Environmental Assessment for 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste." NUREG-1092 discusses the major issues of the rule and the potential impact on the environment. The findings of the environmental assessment are "(1) past experience with water pool storage of spent fuel establishes the technology for long-term storage of spent fuel without affecting the health and safety of the public; (2) the proposed rulemaking to include the criteria of 10 CFR Part 72 for storing spent nuclear fuel and high-level radioactive waste does not significantly affect the environment; (3) solid high-level waste is comparable to spent fuel in its heat generation and in its radioactive material content on a per metric ton basis; and (4) knowledge of material degradation mechanisms under dry storage conditions and the ability to institute repairs in a reasonable manner without endangering the health [and safety] of the public shows dry storage technology options do not significantly impact the environment." The assessment concludes that, among other things, there are no significant environmental impacts as a result of promulgation of these revisions of 10 CFR Part 72.

Based on the above assessment the Commission concludes that the rulemaking action will not have a significant incremental environmental impact on the quality of the human environment.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget approval number 3150-0132.

Regulatory Analysis

The NRC has prepared a regulatory analysis on this final rule. The analysis examines the benefits and alternatives considered by the NRC. The analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from C.W. Nilsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-492-3834).

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule

will not have a significant economic impact on a substantial number of small entities. This final rule affects only the licensing and operation of independent spent fuel storage installations and of monitored retrievable storage installations. The owners of these installations, nuclear power plant utilities or DOE, do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act or within the definition of "small business" in section 3 of the Small Business Act, 15 U.S.C. 632, or within the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 19

Environmental protection, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Penalty, Radiation protection, Reporting and recordkeeping requirements, Sex discrimination.

10 CFR Part 20

Byproduct material, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Special nuclear material, Source material, Waste treatment and disposal.

10 CFR Part 21

Nuclear power plants and reactors, Penalty, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 70

Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment.

Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 73

Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 75

Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 150

Hazardous materials—transportation, Intergovernmental relations, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, 5 U.S.C. 552 and 553, and the Nuclear Waste Policy Act of 1982, as amended, the NRC is adopting the following revision to 10 CFR Part 72 and related conforming amendments to 10 CFR Parts 2, 19, 20, 21, 51, 70, 73, 75, and 150.

53 FR 43419

Published 10/27/88

Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

55 FR 10397

Published 3/21/90.

Effective 4/20/90

Preserving the Free Flow of Information to the Commission

See Part 30 Statements of Consideration

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55 FR 13883
Published 4/12/89.

10 CFR Part 72

RIN 3150-AD21

Preserving the Free Flow of Information to the Commission

Correction

In rule document 90-6424 beginning on page 10397 in the issue of Wednesday, March 21, 1990, make the following correction:

§ 72.10 Employee protection.

On page 10406, in the first column, the section heading following amendatory instruction "14" should read as set forth above.

55 FR 29181
Published 7/18/90
Effective 8/17/90

10 CFR Parts 50, 72, and 170

RIN 3150-AC76

Storage of Spent Fuel in NRC- Approved Storage Casks at Power Reactor Sites

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to provide for the storage of spent nuclear fuel under a general license on the site of any nuclear power reactor provided the reactor licensee notifies the NRC, only NRC-certified casks are used for storage, and the spent fuel is stored under conditions specified in the cask's certificate of compliance. This final rule also provides procedures and criteria for obtaining NRC approval of spent fuel storage cask designs.

EFFECTIVE DATE: August 17, 1990.

FOR FURTHER INFORMATION CONTACT:

John L. Telford, Office of Nuclear
Regulatory Research (Telephone: (301)
492-3796) or John P. Roberts (Telephone:
(301) 492-0608), Office of Nuclear
Material Safety and Safeguards, Nuclear
Regulatory Commission, Washington,
DC 20555.

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SUPPLEMENTARY INFORMATION: Background

The Commission published the proposed rule on this subject in the *Federal Register* on May 5, 1989 (54 FR 19379). The rule proposed to amend 10 CFR part 72 to provide for storage of spent fuel on the sites of nuclear power reactors without the need for additional site-specific Commission approvals, as directed by the Nuclear Waste Policy Act of 1982 (NWPA). Section 218(a) of the NWPA directed the Department of Energy to establish a spent fuel storage development program with the objective of establishing one or more technologies that the NRC might approve for use at civilian nuclear power reactor sites without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission. Section 133 of the NWPA directs the Commission to establish, by rule, procedures for licensing any technology approved under Section 218(a). The approved technology is storage of spent fuel in dry casks. The final rule is not significantly different from the proposed rule. In order to utilize an NRC certified cask under a general license, power reactor licensees must (1) perform written evaluations showing that there is no unreviewed safety question or change in reactor technical specifications related to the spent fuel storage, and that spent fuel will be stored in compliance with the cask's Certificate of Compliance; (2) provide adequate safeguards; (3) notify NRC prior to first storage of spent fuel and whenever a new cask is added to storage; and (4) maintain the records specified in the rule.

Public Responses

The comment period expired on June 19, 1989, but all of the comments received were considered in this final rulemaking. The NRC received 273 comment letters from individuals, environmental groups, utilities, utility representatives, engineering groups, States, and a Federal agency. Among the comment letters were 237 from individuals, including several signed by more than one person. Many commenters discussed topics that were not the subject of this rulemaking, e.g., that the generation of radioactive wastes should be stopped and that environmentally safe alternative sources of power should be developed.

The Western Governors' Association recently passed a resolution expressing their position on the storage of spent commercial power reactor fuel. In this resolution the governors endorsed at-reactor dry storage of spent fuel as an interim solution until a permanent

repository is available. This resolution was forwarded to NRC Chairman Kenneth M. Carr in a memorandum dated December 5, 1989.

Included in the comments received was a "petition" addressed to the Commission, which was signed by 188 people, who are opposed to the proposed rule and who specifically oppose:

1. Storage at the Pilgrim nuclear power plant of spent fuel generated at other reactors,
2. Storage of spent fuel in casks outside the reactor building,
3. Storage of spent fuel without the need for specific approval of the storage site, and
4. Storage of spent fuel without requiring any specific safeguards to prevent its theft.

Many of the letters contained comments that were similar in nature. These comments are grouped, as appropriate, and addressed as single issues. The NRC has identified and responded to 50 separate issues that include the significant points raised. Among the comments that discussed technology, the majority expressed a preference for spent fuel storage in dry casks over wet storage.

On August 19, 1988, the Commission promulgated a final rule revising 10 CFR part 72 (53 FR 31651), which became effective on September 19, 1988. Among the changes made in that final rule was a renumbering of the sections. These revised section numbers are the ones referenced in this rulemaking. Because many people interested in this rulemaking may not have a copy of the newly revised part 72, sections referenced in this Supplementary Information section are followed by a bracketed number that refers to the corresponding section number in the old rule (43 FR 74693, made effective on November 12, 1980).

Analyses of Public Comments

1. *Comments.* Elimination of public input from licensing of spent fuel storage at reactors under the general license was discussed in 237 letters of comment and 52 of the commenters were opposed to the rule for this reason. Many of these comments were opposed to the NRC allowing dry cask storage without going through the formal procedure currently required for a facility license amendment that requires public notification and opportunity for a hearing. One commenter stated that the proposed rule does not guarantee hearing rights mandated by the Atomic Energy Act, and, therefore, the proposed rule must be amended to provide for

site-specific hearing rights before it can be lawfully adopted. Another commenter stated that, by proposing to issue a general license before determining whether license modifications are required in order to allow the actual storage of spent fuel onsite, the NRC apparently intends to circumvent the requirement for public hearings on individual applications for permission to use dry cask storage. This comment continued that this approach would violate the statutory scheme for licensing nuclear power plants, in which the NRC must approve all proposed license conditions before the license is issued. This comment further stated that the NRC cannot lawfully issue a general license for actual onsite storage of the waste without also obtaining and reviewing the site-specific information that would allow it to find that the proposed modification to each plant's design and operation are in conformance with the Atomic Energy Act (the Act) and the regulations.

Response. This rule does not violate any hearing rights granted by the Act. Under 10 CFR parts 2, 50, and 72, interested persons have a right to request a formal hearing or proceeding for the granting of a license for a power reactor or the granting of a specific license to possess power reactor spent fuel in an independent spent fuel storage installation (ISFSI) or a monitored retrievable storage installation (MRS). However, hearing processes do not apply when issues are resolved generically by rulemaking. Under this rule, casks will be approved by rulemaking and any safety issues that are connected with the casks are properly addressed in that rulemaking rather than in a hearing procedure.

There is a possibility that the use of a certified cask at a particular site may entail the need for site-specific licensing action. For example, an evaluation under 10 CFR 50.59 for a new cask loading procedure could require a part 50 license amendment in a particular case. In this event the usual formal hearing requirements would apply. However, generic cask approval (issuance of a certificate of compliance) would, in accordance with section 133 of the Nuclear Waste Policy Act of 1982 (NWPA), eliminate the need for site-specific approvals to the maximum extent practicable.

Under the rule, actual use of an NRC certified cask will require reviews by individual facility licensees to show, among other things, that conditions of the certificate of compliance for the cask will be met. These reviews and necessary follow-up actions by the

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licensee are conditions for use of the cask. For example, licensees must review their reactor security plan to ensure that its effectiveness is not decreased by the use of the casks. But these requirements for license reviews do not constitute requirements for Commission approval prior to cask use: that is no Commission finding with respect to these reviews are needed prior to use of the casks. Therefore, no hearing rights will accrue to these reviews unless, of course, the reviews point to the need for an amendment of the facility license. The Commission is satisfied that public health and safety, the common defense and security, and protection of the environment is reasonably assured without the requirement for Commission approval of these license reviews because conservative requirements apply, such as a safety analysis of cask designs, including design bases, design criteria, and margins of safety; an evaluation of siting factors, including earthquake intensity and tornado missiles; an application of quality assurance, including control of cask design and cask fabrication; and physical protection. These conservative requirements and stringent controls assure safe cask storage for any reactor site.

2. *Comments.* The NRC apparently intends to exercise no systematic or mandatory review of applications to store fuel in dry casks, despite the numerous changes involved in the reactor's design and procedures. This commenter further stated that the rule should provide for mandatory submission and review by the NRC of technical documents required in § 72.212 and that these documents should be placed in the public document rooms for inspection by the public.

Response. A condition of the general license is that a reactor licensee must determine whether activities related to storage of spent fuel at the reactor site involve any unreviewed safety question or require any change in technical specifications. This written determination becomes part of the reactor licensee's records. Under 10 CFR 50.59, an unreviewed safety question is involved if (1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR may be increased; or (2) if a possibility for an accident or malfunction of a different type than any evaluated previously in the SAR may be created; or (3) if the margin of safety as defined in the basis for any technical specification is reduced. If the

evaluation made under 10 CFR 50.59 reveals any unreviewed safety question or if use of a cask design requires any change in technical specifications or a facility license amendment is needed for any reason, then casks of that design cannot be used to store spent fuel under the general license. The reactor licensee must apply for and obtain specific NRC approval of those changes to the facility license necessary to use the desired cask design, use a different cask design, or apply for a specific license under 10 CFR part 72. If the reactor licensee chooses to make changes to accommodate the desired cask design, e.g., revise technical specifications, an application for a license amendment would have to be submitted under 10 CFR 50.90.

3. *Comments.* It appears that a hearing would be mandated under the Act, as spent fuel storage under the general license would involve a license amendment. The commenter argued that nuclear power reactor licenses contain a clause stating that the facility has been constructed and will operate in accordance with the application and that the application will operate in accordance with the application and that the application includes the FSAR (10 CFR 50.34(b)). If the FSAR does not describe cask storage of spent fuel, then a facility using cask storage would not be operating in accordance with the application and the license, necessitating a license amendment.

Response. According to 10 CFR 50.34(b) each application for a license to operate a power reactor must include an FSAR. The FSAR must include information that describes the facility, presents the design bases and limits on its operation, and presents a safety analysis of the structures, systems, and components of the reactor. A power reactor is licensed to operate under the regulations in 10 CFR part 50. If spent fuel is stored in an ISFSI on a reactor site, this storage will be licensed under the regulations in 10 CFR part 72. The ISFSI may share utilities and services with the reactor for activities related to the storage of spent fuel, e.g., facilities for loading spent fuel storage casks. A power reactor FSAR will contain a description of cask loading and unloading, because reactor fuel (both fresh and spent) must be handled for operation of the reactor. If no amendment of the operating license is necessary (e.g., there is no problem in fuel handling concerning heavy loads and there is no unreviewed safety question), then spent fuel may be stored under the general license. The authority for storage of spent fuel in the certified

cask would be derived from the general license, not from the part 50 license.

4. *Comments.* The NRC should reconsider the indiscriminate storage on a reactor site of spent nuclear fuel that was generated at other reactor sites. One commenter stated that there should be a restriction to permit only transfer of spent fuel from plant to plant within a utility-owned group of plants. Another commenter stated that storage of spent fuel from two or more reactors inevitably makes the host site a de facto regional repository, without the same benefit of review and discussion given the regional site. Another commenter suggested that the amount of spent fuel stored on a site should be limited to that amount produced by the site's reactor operations. The major concern of these commenters appeared to be that spent fuel from a number of reactors would be deliberately accumulated and stored at one reactor site under this general license.

Response. This rulemaking is not concerned with transfer or shipment of spent fuel from one reactor site to another. As explained in the discussion of the proposed rule (54 FR 19379), transfer of spent fuel from one reactor site to another must be authorized by the receiving reactor's operating license. Such authorization usually will require a license amendment action conducted under the regulations in 10 CFR part 50. The transportation of the spent fuel is subject to the regulations in 10 CFR part 71. This rulemaking is not germane to either spent fuel transfer or transportation procedures. The NRC anticipates that, beginning in the early 1990s, there will be a significant need for additional spent fuel storage capacity at many nuclear power reactors. This was a major reason for initiating this rulemaking at this time. Dry storage of spent fuel in casks under a general license would alleviate the necessity of transferring spent fuel from one reactor site to another.

5. *Comment.* The Commission should reconsider a petition for rulemaking submitted by the State of Wisconsin. The petition requested that the NRC expand the scope of its regulations pertaining to spent fuel transport "to ensure that both the need for and the safety and environmental consequences of proposed shipments have been considered in a public forum prior to approval of the shipment and route."

Response. As explained in the response to comment number 4, this rulemaking does not apply to transportation of spent fuel. Transportation of spent fuel is the subject of 10 CFR part 71, under which

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the issues raised by this petition were considered. There is no reason to reconsider this petition in terms of the issues under consideration in this rulemaking.

6. *Comment.* How would the rulemaking process for cask approvals be implemented?

Response. The initial step would be taken by a cask vendor submitting an application for NRC approval of a cask design. The NRC would review the cask safety analysis report (SAR) and other relevant documents. If the cask design is approved, the NRC would initiate a rulemaking to amend 10 CFR 72.214 to add certification of the cask design. The NRC would also revise the NUREG containing the Certificates of Compliance for all approved storage casks to add the new cask's Certificate of Compliance.

7. *Comment.* The proposed 10 CFR 72.236(c) would establish a criterion that casks must be designed and fabricated so that subcriticality is maintained. This seems to suggest that the actual fabrication takes place before cask approval. Otherwise how could NRC find that the cask has been fabricated to maintain subcriticality?

Response. Findings by the NRC concerning safety of cask design are based on analyses presented in the cask SAR. In the case of criticality analyses, the SAR must include a description of the calculational methods and input values used to determine nuclear criticality, including margins of safety and benchmarks, justification and validation of calculational methods, fuel loading, enrichment of the unirradiated fuel, burnup, cooling time of the spent fuel prior to cask storage, and neutron cross-sectional values used in the analysis. Further, in order to obtain approval of a cask design, the vendor must demonstrate that casks will be designed and fabricated under a quality assurance program approved by the NRC. As an example, if neutron poison material were part of the cask design to prevent inadvertent criticality, the quality assurance program would have to ensure that the material was actually installed as designed. The NRC will not inspect fabrication of each cask, but will ensure that each cask is fabricated under an NRC-approved quality assurance program. Thus, there is reasonable assurance that the cask will be designed and fabricated to maintain spent fuel in a subcritical configuration in storage.

8. *Comment.* Each utility should be required to present a plan for inspecting the casks in the storage area.

Response. Surveillance requirements for spent fuel storage casks in the

storage area are required and are described in the cask's Certificate of Compliance. Also, periodic inspections for safety status and periodic radiation surveys are required by the certificate. Further, licensees will have to keep records showing the results of these inspections and surveys.

9. *Comments.* The 20-year limit on approval of cask designs seems unduly restrictive and was not supported by any discussion of safety or environmental issues in the preamble of the proposed rule. One comment stated that unless there are overriding institutional issues or a defect in a cask model, which would preclude providing adequate protection of the environment or public health and safety, there would be no need to revoke or modify a Certificate of Compliance. Three commenters suggested that the criteria for cask design reapproval should be limited to safety and environmental issues related to the storage period, because there may have been proprietary information involved in the initial approval that might not be available for reapproval. Another commenter stated that the licensing period for spent fuel storage casks should be extended to be at least equal to the operating license of the reactor. Another commenter stated that because a 100-year period is being considered by the Commission in its waste confidence review, an extension should be considered for a cask certification period.

Response. The procedure for reapproval of cask designs was not intended to repeat all of the analyses required for the original approval. However, the Commission believes that the staff should review spent fuel storage cask designs periodically to consider any new information, either generic to spent fuel storage or specific to cask designs, that may have arisen since issuance of the cask's Certificate of Compliance. A 20-year reapproval period for cask designs was chosen because it corresponds to the 20-year license renewal period currently under part 72.

10. *Comment.* It is conceivable that, after 20 years of storage, the regulations could force the transfer of spent fuel at the reactor to a new cask or a different cask design only because it better conforms to DOE's preference. If considerations such as safety risks and occupational exposure from spent fuel transfer are not a significant factor, this potential uncertainty should be removed from the rule.

Response. The Department of Energy (DOE) will be the ultimate receiver of spent fuel. If a cask design were not

compatible with DOE's criteria for receipt of spent fuel, then measures would need to be taken so that spent fuel could be transferred offsite. What these measures might be would depend on the cask design and DOE's criteria.

11. *Comment.* The practice of permitting each vendor to not seek reapproval of the cask design after a 20-year period seems "fragile and irresponsible."

Response. This comment is interpreted to mean that the Commission should require each cask vendor to submit an application for reapproval of their cask design. The Commission's authority over corporate entities is limited to licensing matters and it cannot control the economic status of spent fuel storage cask manufacturers. The NRC cannot require that a cask vendor submit an application for renewal of a storage cask design if the vendor is no longer in business. A cask vendor who remains in the business of manufacturing spent fuel storage casks is required to submit an application for renewal of a cask design. Otherwise the cask's Certificate of Compliance would expire and that cask design could not be used to store spent fuel. Licensees cannot use any cask that does not have a valid Certificate of Compliance. If a cask vendor goes out of the business of supplying spent fuel storage casks, it would not invalidate NRC approval of the spent fuel storage casks that were manufactured by this vendor and remain in use. That is the reason the Commission will permit general licensees or their representatives to apply for cask design reapproval. Accordingly, the Commission will keep appropriate historical records and conduct inspections, as required, related to spent fuel storage in casks. Cask vendors are requested to notify the Commission if they do not intend to submit an application for reapproval of a cask design. Also, vendors are required under 10 CFR 72.234 to submit their composite record to the NRC of casks manufactured and sold or leased to reactor licensees if they permanently cease manufacture of casks under a Certificate of Compliance. In any case, the cask design renewal procedure will be coordinated through historical records, inspections, and communications with cask vendors.

12. *Comments.* The requirements in proposed § 72.234(c) that cask fabrication cannot start prior to receipt of the Certificate of Compliance is unnecessarily restrictive. The commenter indicated that a vendor should have the option of being able to

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start fabrication (taking the risk of building a cask that may not ever be licensed) prior to NRC issuing the Certificate of Compliance.

Response. Section 72.234(c) is not intended to prevent vendors from taking a risk. The Certificate of Compliance provides the specific criteria for cask design and fabrication. If a vendor has not received the certificate, then the vendor does not have the necessary approved specifications and may design and fabricate casks to meet incorrect criteria.

13. *Comments.* Requiring a submittal for reapproval of cask design 3 years before the expiration date of a Certificate of Compliance seems excessive. Another commenter suggested that a procedure similar to that used for renewal of materials-type licenses could be used, which is that when a licensee submits an application for license renewal in proper form not less than 30 days prior to the expiration date of the license that the existing license does not expire until the application for renewal has been finally determined by the Commission.

Response. Current regulations in 10 CFR part 72 requires that applications for license renewal be submitted 2 years prior to the expiration date of the license. This was a major consideration for setting the date for submittal of a cask design reapproval application in the proposed rule. The NRC has reconsidered this requirement and believes that the period required for cask design reapproval can be reduced. The final rule has been revised to incorporate language similar to that for other materials-type license renewals, which would allow a Certificate of Compliance to continue in effect until the application for reapproval has been finally determined by the Commission.

14. *Comments.* No spent fuel dry storage should be allowed at sites that do not have fully operational State approved emergency preparedness plans. Another commenter stated that, for emergency response purposes and for proper inclusion in emergency planning, the utility must notify State and local governments simultaneously with the NRC when spent fuel storage is begun. Another commenter inquired whether or not States would be notified of spent fuel storage at the reactor site in order to minimize emergency response planning impacts.

Response. The new 10 CFR 72.32(c) [no section in the old rule is applicable] states that "For an ISFSI that is located on the site of a nuclear power reactor licensed for operation by the Commission, the emergency plan required by 10 CFR 50.47 shall be

deemed to satisfy the requirements of this section." One condition of the general license is that the reactor licensee must review the reactor emergency plan and modify it as necessary to cover dry cask storage and related activities. If the emergency plan is in compliance with 10 CFR 50.47, then it is in compliance with the Commission's regulations with respect to dry cask storage. Thus, the utility does not need to separately notify State and local governments before beginning spent fuel storage.

15. *Comment.* What extra information, beyond that currently required in safety analysis reports, will be required in topical safety analysis reports for cask certification?

Response. Currently a Topical Safety Analysis Report (TSAR) is submitted to obtain spent fuel storage cask certification. NRC procedures allow applicants and licensees to reference appropriate Sections of a TSAR in licensing proceedings, which reduces investigative and evaluation costs for them. Under this final rule, applications and a Safety Analysis Report (SAR) (equivalent to a TSAR) will have to be submitted to cask design certification. There will not be any "extra" information required in an SAR as a result of this rulemaking. Guidance on the information to be submitted in an SAR for cask design certification is contained in Regulatory Guide 3.61, "Standard Format and Content for a Topical Safety Analysis Report for a Spent Fuel Dry Storage Cask."

16. *Comment.* One comment stated that it is unclear from the proposed rule as to whether full-scale or scale model testing is required for cask certification.

Response. The safety of cask designs is analyzed in the SAR. The staff reviews cask design bases and criteria. The design and performance of the cask and the means of controlling and limiting occupational radiation exposures are analyzed. Appropriate functional and operating limits (technical specifications) are developed. However, in instances where cask design, construction, or operation can not be satisfactorily substantiated, the staff may require that some component or system testing be performed. During the first use of a certified design the licensee, in conjunction with the vendor, may be required to conduct preoperational testing on the first cask and submit a report to the NRC. This preoperational testing would assess the extent to which data supports the critical aspects of design, for example, the resultant cask temperature, pressure, and external radiation. Full-scale testing is not currently required for spent fuel

dry storage cask design certification. However, testing of systems and components important to safety is required, and is specified in the Certificate of Compliance.

17. *Comment.* Can the NRC provide examples of acceptable means of demonstrating that a cask will reasonably maintain confinement of radioactive material under normal, off-normal, and accident conditions?

Response. Certification of a cask design is based on analyses described in each cask's SAR. These analyses must show how radioactive materials will be confined through evaluations of the cask's systems, structures, and components, and the designed markings of safety. These analyses are performed on an individual case basis considering each cask's design, materials of construction, cask sealing systems, fuel basket criticality considerations, and gamma and neutron shielding mechanisms. Thus, analyses are the acceptable means of demonstration.

18. *Comment.* The NRC should use this amendment to provide guidance or criteria on use of burnup credit in criticality analyses.

Response. Evaluations of burnup credit are dependent on parameters such as fuel design, exposure, and characteristics. These evaluations are best conducted on an individual case basis, because the variables that must be evaluated are closely related to the individual case history of the spent fuel. Thus, guidance on such evaluations would be more appropriately set forth in regulatory guides, rather than in regulations. To date allowance for burnup credit has not been accepted in reviews conducted under 10 CFR part 72, however, regulatory guides may be issued in the future.

19. *Comment.* What will a current reactor licensee have to do to obtain a general license?

Response. As specified in § 72.212(b), a power reactor licensee must (1) perform written evaluations establishing that spent fuel storage will be in compliance with a cask's Certificate of Compliance and that there is no unreviewed safety question or change in technical specifications involved in activities at the reactor related to the storage of spent fuel in casks, (2) provide adequate safeguards for the spent fuel in storage, (3) notify NRC prior to first-storage of spent fuel and whenever a new cask is used, and (4) keep records of spent fuel storage and related activities.

20. *Comment.* Could the general license be used to store spent fuel beyond the term of the reactor operating

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license? Several utilities hold operating licenses at more than one site; thus, clarification is needed as to when an operating license is terminated and how licensees may use a general license.

Response. A licensee who holds reactor operating licenses at more than one site must notify NRC for each site involved. A licensee who holds operating licenses for more than one reactor located on a single site need notify NRC only once.

Spent fuel can be stored on a site only as long as there is a power reactor with a valid license or the possession of spent fuel is authorized under some other regulation or form of license. This could be an amended license issued under 10 CFR 50.82, under which any reactor licensee may apply for termination of the operating license and to decommission the facility. When the reactor is put into a condition in which it cannot operate, the operating license would be amended to permit the licensee to possess the byproduct, source, and special nuclear material remaining on the site. Storage of spent fuel in dry casks under the general license could continue under the amended license, which is often called a "possession-only" license.

Decommissioning means to remove a facility from service, reduce the residual radioactivity to a level that permits termination of the license, and release of the site for unrestricted use. Spent fuel stored under a general license must be removed before the site can be released for unrestricted use (i.e., decommissioned).

21. Comment. The proposed rule is unclear as to when the general license would terminate if a cask model has been reapproved by NRC following use of the cask for a period of up to 20 years. One commenter also suggested that § 72.212(a)(2) be changed to read: "The general license for the storage of spent fuel in each cask fabricated under a Certificate of Compliance shall terminate either 20 years after the date that the cask is first used by the licensee to store spent fuel, or, if the cask model is reapproved for storage of fuel for more than 20 years, at the conclusion of this newly-approved storage period, beginning on the date that the cask is first used by the licensee to store spent fuel."

Response. The intent of proposed § 72.212(a)(2) is that spent fuel may be stored under a valid Certificate of Compliance for a particular cask for a period of up to 20 years starting on the date the cask is first used for storage of spent fuel by the licensee. If a cask design is reapproved, the 20-year storage period begins anew, including

casks of that design that remain in use. The 20-year storage period will also apply to new casks put into use after a Certificate of Compliance is reapproved. If a particular cask's Certificate of Compliance expires, the spent fuel stored in casks of this design must be removed after a period not exceeding 20 years following first use by the general licensee of a particular cask. Revisions have been made to 10 CFR 72.212(a)(2) to more accurately reflect this intent.

22. Comment. The \$150 application fee shown in § 70.31 should be included in the total fee for the license and not required to be submitted at the time of the application.

Response. The Federal Register notice for the proposed rule was in error in that it indicated a revision to § 70.31; the revision is actually being made to § 170.31. The Commission agrees that the \$150 filing fee is not required to be submitted at the time of the application. The necessary changes to eliminate the filing fee have been made in § 170.31. This is consistent with a similar change made with respect to filing fees in § 170.21 effective January 30, 1989. There is no application fee for the general license. However, the Commission has decided that it will assess fees for those inspections conducted under the general license (§ 72.212(b)(1)(iii)).

23. Comment. Cask vendors, some of which are small businesses, will be affected by the rule and should be considered in the Regulatory Flexibility Act Certification statement.

Response. Under this rulemaking the NRC will recover full costs, which are currently estimated to be between \$250,000 and \$300,000 for cask vendors. No other significant incremental impacts are anticipated, because the criteria for cask design approvals in this final rule are not significantly different from those currently required under part 72. The Regulatory Flexibility Act Certification Section of the final rule has been revised accordingly.

24. Comment. Some qualification is needed for the requirement in § 72.212(b)(2) that a licensee perform written evaluations showing compliance with the cask's certificate for the anticipated total number of casks to be used for storage. There is no certainty regarding when any spent fuel will be accepted by DOE, and this uncertainty should be clarified in the final rule.

Response. Each cask SAR includes an analysis of cask arrays, and licensees must consider these analyses in their selection of a cask model. Multiple storage arrays may be used if additional spent fuel storage capacity is needed. However, it was not intended that licensees be required to anticipate how

much storage capacity would be needed before DOE begins accepting spent fuel for storage or disposal. Thus, revisions to § 72.212(b)(2) have been made to clarify the intent.

25. Comment. Spent fuel should be required to be stored in the reactor fuel storage pool for a minimum of 5 years prior to dry cask storage. Such a provision would place considerably less thermal stress on the storage casks. Other commenters also questioned why this was not made a requirement.

Response. It is likely that the spent fuel will be stored in the reactor fuel pool for at least 5 years before storage in a cask. However, it is not necessary to make this a requirement, because casks can be designed to safely store spent fuel having a wide range of previous pool storage times.

26. Comments. The language in proposed 10 CFR 72.230 should be changed to reflect the condition that an application for certification of a storage cask must be made available to the public.

Response. The language of this section parallels the language in § 72.20 [§ 72.13] on which it is based, i.e., that "Applications and documents submitted to the Commission in connection with applications may be made available for public inspection in accordance with provisions of the regulations contained in parts 2 and 9 of this chapter." In general, applications will be made available except to the extent that they contain information exempt from disclosure such as proprietary or classified information.

27. Comments. The proposed rule should be modified to include alternative storage technologies. Two commenters indicated that the proposed rule approval of only one storage technology (i.e., spent fuel storage in dry casks) provides an unfair competitive advantage to suppliers of these systems.

Response. The reasons for Commission approval of spent fuel storage in dry casks are discussed in the Federal Register notice for the proposed rule. An important consideration is that free-standing casks, being very strong and massive structures, are independent of the effects of site-specific natural phenomena. For instance, in a worst case scenario considering the effects of earthquakes, a cask could topple. Forces from this fall would be well within a cask's design limits for safe confinement of radioactivity. Importantly, site-specific approvals would not be required by the Commission, provided conditions in subpart K are met. One system specifically mentioned in the comments is NUHOMS (registered trade

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mark by NUTECH Inc.), which consists of storing spent fuel in sealed canisters and storing the canisters in concrete modules. Another system mentioned is the Modular Vault Dry Store (FW Energy Applications, Inc.), which consists of storing the spent fuel in sealed containers and storing the containers in racks set in concrete or earth for shielding. A major reason that these spent fuel storage systems, which are being considered by the Commission for use under a general license, are not being approved at this time is that they have components that are dependent on site-specific parameters and; thus, require site-specific approvals. For instance the concrete storage modules used in the NUHOMS system and the racks and concrete shielding required by the Modular Vault Dry Store system, which are structures and systems important to safety, are usually constructed in-place and require site-specific evaluations of earthquake intensity and soil characteristics.

28. *Comment.* Paragraph 5 and 6 of "Discussion" in the proposed rule **Federal Register** notice did not include NUHOMS topical safety analysis reports (TSAR), although they have been approved by the staff.

Response. Two topical safety analysis reports for NUHOMS systems have been reviewed and approved by the NRC staff. Approval of a TSAR allows an applicant for a specific license under Part 72 to reference the document, instead of having to develop separate safety evaluations.

29. *Comments.* A licensee should be required to register use of casks prior to actual use of the cask, rather than within 30 days. Another commenter stated that the Commission has not demonstrated that the requirement to report initial storage of spent fuel in a cask within 30 days is the least burdensome necessary to achieve the Commission's objective. This commenter suggested that this information could be reported at the annual inventory.

Response. The purpose of the registration notice in § 72.212(b)(1)(ii) is to enable NRC's Office of Nuclear Material Safety and Safeguards to establish and maintain a record of the use of each cask. If safety issues arise during storage of spent fuel under the general license, they will be reported under § 72.216. The purpose of the records related to spent fuel inventory, required under § 72.72 [§ 72.51], is to enable NRC's Office of Nuclear Reactor Regulation to inspect for compliance with safeguards regulations. The information submitted under § 72.212(b)(1)(ii) is necessary to enable

the NRC to take appropriate action in a timely manner on any issue that may arise.

30. *Comments.* The proposed rule requires that spent fuel storage cask designers give consideration to compatibility of cask designs with transportation and ultimate disposal by DOE. Some commenters favored this consideration and others questioned its advisability, unless specific criteria could be provided. Some commenters indicated that NRC should also address the lack of consistency between parts 71 and 72.

Response. Specific design criteria for spent fuel disposal may not be available until a repository design is approved. However, cask designers should remain aware that spent fuel ultimately will be received by DOE and that cask designs should adopt DOE criteria as they become available. This does not mean that cask designs previously certified by NRC will have to be recertified for this reason in order to continue to store spent fuel.

It is not necessary that storage casks be designed for transport of spent fuel (i.e., to meet requirements in part 71), because the spent fuel could be unloaded and transferred into transport casks approved under part 71, if necessary. However, in the interest of reducing radiation exposure, storage casks should be designed to be compatible with transportation and DOE design criteria to the extent practicable. Transportation compatibility will be attainable to the extent that cask designers can avoid return of spent fuel from dry storage to reactor basins for transfers to a transport cask before moving it off-site for disposal.

31. *Comment.* Section 72.238 should be revised to read "The criteria in § 72.236 (a) through (i) and (m)."

Response. Section 72.236(m) states that, to the extent practicable in the design of casks, consideration should be given to the compatibility of the dry storage cask system and components with transportation and other activities related to the removal of the stored spent fuel from the reactor site for ultimate disposition by DOE. DOE is developing repository storage designs that will be acceptable for use at their permanent spent fuel storage facility. However, specific criteria for designing spent fuel storage casks for compatibility may not be available until the design for a high-level waste repository is complete. Revision of § 72.238 is not considered to be appropriate at this time, although requirements in proposed § 72.236(m) have been retained separately.

32. *Comment.* The environmental assessment fails to conform to the requirements of the National Environmental Protection Act of 1969 (NEPA) and the guidelines of the Council on Environmental Quality (CEQ).

Response. The Commission's regulations for implementing section 102(2) of NEPA in a manner consistent with NRC's domestic licensing and related regulatory authority under the Atomic Energy Act are set forth in 10 CFR part 51. These regulations were revised in March of 1984 (49 FR 9352), taking into account the guidelines of CEQ. The environmental assessment for this rule was performed in conformity with the agency's environmental review procedures in 10 CFR part 51 and thereby conforms to NEPA requirements.

33. *Comment.* While the public notice provides a list of documents which contain current information, a supplemental environmental impact statement is required in order to inform the public as to the nature of the information and to allow an opportunity for public comment.

Response. Potential environmental impacts related to this rulemaking were analyzed in its environmental assessment, in previous rulemakings related to revision of part 72, and in the Commission's waste confidence proceedings that resulted in publication of the Waste Confidence Decision in the **Federal Register** on August 31, 1984 (49 FR 34658). In its waste confidence proceedings the Commission found that it has reasonable assurance that no significant environmental impacts will result from the storage of spent fuel for at least 30 years beyond the expiration of nuclear power reactor operating licenses. As a result of its Waste Confidence Decision, the Commission revised its regulations in 10 CFR 51.23 to eliminate discussion of the environmental impact of spent fuel storage in reactor storage pools or independent spent fuel storage installations for the period following the term of the license. In addition, the Commission recently published a review of its waste confidence decision (54 FR 39765; September 27, 1989). Accordingly, an environmental assessment, rather than an environmental impact statement, is considered suitable for this rulemaking. Also all of these documents were published in the **Federal Register** to allow an opportunity for public comment.

34. *Comment.* The NRC has misrepresented the requirements of the NWA. The environmental assessment

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and finding of no significant environmental impact states that the NWSA directs the Commission to approve one or more technologies for use of spent fuel storage. While the demonstration program is mandated, the adoption of one or more technologies is not.

Response. Section 218(a) of the NWSA does not direct the Commission to approve any spent fuel storage technology. However, the objective of the demonstration program is clearly meant to provide the basis for Commission approval of one or more technologies for use at civilian nuclear power reactor sites. Section 133 of the NWSA directs that the Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under section 218(a). Thus, the NRC has properly represented the directives of the NWSA. The environmental assessment explains this relationship in the section entitled "The Need for the Proposed Action."

35. *Comments.* The NRC failed to discuss the consequences of a failure of its assumptions. The NRC states that the potential for corrosion of fuel cladding and reaction with the fuel is reduced "because an inert atmosphere is expected to be maintained" inside the casks. Further, the NRC "anticipates that most spent fuel stored in the casks will be 5 years old or more." What are the consequences if the scenarios the NRC "anticipates" does not happen?

Response. The potential consequences from off-normal and accident conditions involving spent fuel storage were discussed in the proposed rule. Licensees are required to store spent fuel under the general license, in accordance with the regulations in 10 CFR part 72 and the cask's Certificate of Compliance. Part 72 prohibits the storage of spent fuel that is less than 1 year old. The Certificate of Compliance requires that the spent fuel be stored in accordance with the technical specifications developed in the safety analysis report. These specifications set forth the age, number of fuel assemblies, maximum initial enrichment, maximum burnup, and maximum heat generation rate of the spent fuel. In general terms, the longer the spent fuel is aged, the greater the capacity of the cask. Cask atmospheres will be required to be filled with an inert gas and provided with monitoring systems to detect leaks in the cask sealing system. If the redundant seals and the monitoring system fail, oxidation of the fuel cladding could occur if the inert gas leaked out, atmospheric air leaked in, and the

internal cask temperature increased markedly. But, there would not be any significant increase in radioactivity, because any release of radioactive particles from the fuel rods would remain confined within the cask. If the redundant seals fail and the monitoring system does not fail, the monitoring system would detect the failure and the seals would be promptly repaired. If removal of the spent fuel were required, unloading procedures call for checking the cask's atmosphere before removing the lid and the radioactive material within the cask would be retained by the reactor fuel handling facility containment systems with no significant release to the environment.

Improper loading of spent fuel aged for less than 5 years is readily detectable by spent fuel assembly identification, independent verification, and monitoring procedures. If an improper fuel loading should occur, the results would be limited to a marginally higher storage temperature and possibly a slight increase in radiation from the cask. Any significant increase in temperature or radiation would be detected through procedures for cask monitoring, which have been added to the requirements in the Certificate of Compliance.

36. *Comments.* The criteria for locating storage cask sites, for ensuring adequate cooling for casks, for evaluating the adequacy of radiation shielding, or for other aspects of cask designs in the proposed rule have not been assessed for environmental impact.

Response. These technical criteria have been assessed and are currently used by the NRC for approval of cask designs under part 72. As previously mentioned, the environmental impacts related to storage of spent fuel under part 72 have been generically evaluated under two previous rulemakings and the Commission's waste confidence proceedings. Thus, these potential environmental impacts need not be reassessed.

37. *Comment.* The environmental impact of decommissioning contaminated casks after the 20-year storage period has not been assessed.

Response. The decommissioning of contaminated casks was discussed in the environmental assessment for this rule, which points out that decommissioning of dry cask spent fuel storage under a general license may be carried out as part of the power reactor site decommissioning plan. Decommissioning would consist of removing the spent fuel from the site and decontaminating cask surfaces. Alternately, this decontamination could

take place at a DOE operated facility. In either case, the decontamination solutions would be combined with larger volumes of contaminated solutions resulting from decontamination of the reactor or DOE facility; thus, environmental impacts from decommissioning casks are expected to be a small fraction of the overall decommissioning impacts. Also the incremental costs associated with decommissioning casks are expected to represent a small fraction of the cost of decommissioning a nuclear power reactor. It is noted that, if the decommissioning of a reactor presents no significant safety hazard and if there is no significant change in types or amounts of effluents or increase in radiation exposure, then this decommissioning is covered by a categorical exclusion under 10 CFR 51.22.

38. *Comment.* The fire in the spent fuel storage pool subsequent to the major accident at Chernobyl has not been considered in the proposed rulemaking.

Response. In the early stages of the Chernobyl accident a hypothesis was developed that a fire occurred in the spent fuel pool. This hypothesis was not based on observation of any real fire at the Chernobyl installation, but rather inferred from fallout spectra observed in eastern Europe. Officials of the USSR have confirmed that indeed a fire did not occur in the spent fuel pool at Chernobyl. In fact, a fire in a spent fuel storage pool is not credible and, therefore, was not considered in the proposed rulemaking.

39. *Comment.* The NRC has studied responses of loaded casks to a range of sabotage scenarios. The four casks that are referenced in the background information are all metal casks, and there is limited reference to concrete systems. Because the referenced study is classified, we do not have any indication that this study specifically addressed concrete dry storage systems with respect to small arms, fire, and explosives.

Response. The referenced study did not specifically consider concrete storage systems. However, the general conclusions of the study could be extended to concrete storage systems because of the difficulty of using small arms, fire, or explosives to (1) create respirable particles and (2) cause those particles to be spread off site. These difficulties derive from both the inherent resistance to dispersal of the spent fuel and the massiveness of the storage casks required to provide both shielding from radiation and protection of the spent fuel from earthquakes and tornado

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missiles, which are requirements that all designs must meet.

40. *Comments.* Safeguards requirements were either inadequate or too stringent. One commenter stated that the safeguards system for the existing site cannot be considered adequate for the additional burden of spent fuel cask storage. Unless a utility commits to a location for cask storage adjacent to the reactor building, the existing safeguards can be compromised and any cask storage area should be located greater than 100 meters from the nearest public access (roadway, park, beach, etc.). Another commenter suggested that terrorists need targets and that above-ground storage of spent fuel provides terrorists with a target. It further stated that a small bomb dropped from a light plane or helicopter could spread the contents of an above-ground cask over many states. Another commenter stated that there is no reason why the licensee should be exempt from §§ 73.55(h)(4)(iii)(A) and 73.55(h)(5), which requires that guards interpose themselves between vital areas and any adversary, and respond using deadly force if necessary. Another commenter stated that § 73.55 requirements are not needed for a spent fuel storage area that is a new protected area separate from the existing reactor protected area. This commenter further stated that the background material for this proposed rule indicates that requirements should be significantly reduced from § 73.55 requirements for storage areas within a new separate protected area and, specifically, that § 72.212 should specify the requirements instead of referencing exemptions from § 73.55.

Response. As described in the proposed rule (54 FR 19379), none of the information the staff has collected confirms the presence of an identifiable domestic threat to cask storage facilities. Despite the absence of an identifiable domestic threat, the NRC considered it prudent to study the response of loaded casks to a range of sabotage scenarios. After considering various technical approaches to radiological sabotage, and experiments and calculations, the NRC concluded that radiological sabotage, to be successful, would have to be carried out using large quantities of explosives, not a small bomb dropped from an airplane, and that the consequences to public health and safety would be low because most of the resultant contamination would be localized to the storage site. (See response to comment 39 above.) Thus, the condition to be protected against is protracted loss of control of

the storage area. For that reason, protection requirements were proposed to provide for (1) early detection of malevolent moves against the storage site and (2) a means to quickly summon response forces to ensure protection against protracted loss of control of the storage area. Given these conditions, exemptions were provided for those § 73.55 provisions not essential to early detection of malevolent acts and for summoning local law enforcement agencies or other response forces. With the exception of one change in the rule that is being adopted (which is consistent with the intent of the proposed rule and is discussed in Comment 46), the NRC does not believe that these comments provide any new information or sufficient rationale for changing the proposed rule. Further, 10 CFR 72.106(b) requires that the minimum distance from the storage facility to the nearest boundary of the controlled area shall be at least 100 meters.

41. *Comment.* Could the cask body be the protected area boundary?

Response. No, because that would not meet the requirements in § 73.55(c) for an isolation zone. An isolation zone must be maintained adjacent to the physical barrier and must be of sufficient size to permit observation of the activities of people on either side of the barrier in the event of its penetration. Thus, the cask body cannot be the physical barrier.

42. *Comment.* Please clarify the requirement for a periodic inventory of the special nuclear material contained in the spent fuel.

Response. It is the same as the current requirement for periodic inventory of special nuclear material that is required by § 72.72 [§ 72.51]. Cask records must show the contents of the cask, including the special nuclear material. In lieu of periodically opening a cask, a licensee may use tamper indicating seals to show that the cask has not been opened. If any tamper indicating seals are broken, then the contents of the cask may have to be verified.

43. *Comment.* The requirements for vital areas are delineated in other paragraphs of § 73.55, and all vital area requirements throughout § 73.55 should be exempted in 10 CFR 72.212(b)(5)(ii), not just § 73.55(c).

Response. The NRC agrees with this comment. Proposed § 72.212(b)(5)(ii) states that storage of spent fuel under this general license need not be within a separate vital area. If spent fuel is not stored within a vital area (i.e., rather in a separate protected area), then regulations that pertain only to vital

areas would not apply to a spent fuel storage area.

44. *Comment.* Paragraph (b)(5)(iii) of § 72.212 should distinguish between the security requirements for an existing protected area that is expanded and a new protected area. In the case of a new protected area, § 73.55(h)(6) should not be required. Instead, the requirement should be only an alarm assessment via CCTV, guard, or watchman.

Response. The NRC agrees with this comment. For an existing protected area, the current requirements will continue. Proposed §§ 72.212(b)(5)(iii) and (iv) have been revised to apply only to new protected areas. Proposed § 72.212(b)(5)(iv) has been revised to allow a guard or watchman on patrol in lieu of closed circuit television to provide the necessary observational capability.

45. *Comment.* For purposes of this rule, if the licensee is exempt from §§ 73.55(h)(4)(iii)(A) and (5) (i.e., neutralize threat), then § 73.55(h)(3) requirements (i.e., number of armed responders) should also be exempted.

Response. The general license presumes that the same essential physical security organization and program will be applied to spent fuel storage as are currently applied to protection of the reactor. Paragraph (b)(5)(i) of § 72.212 requires that the organization and program be modified as necessary to ensure that there is no decrease in effectiveness. Accordingly, additional personnel need be added only if it is necessary to ensure that there is no decrease in effectiveness. The rule does not require an independent application of § 73.55(h)(3), which specifies the minimum number of armed responders for a spent fuel storage area.

46. *Comment.* The requirement in § 73.55(d)(1) that searches for firearms and explosives be accomplished by equipment designed for such detection should be deleted when a new protection area is added that is not contiguous with the existing protection area. The only requirement in this case should be to perform a visual search for bulk explosives. This is supported by the discussion in the *Federal Register* notice.

Response. The NRC agrees that searches for firearms and explosives for the purposes of a general license under this rulemaking need not be conducted using equipment capable of detecting these devices. Accordingly, the final rule had been revised to allow the use of physical pat-down searches, in lieu of detection equipment, for firearms and explosives searches.

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47. *Comments.* Is the use of the word "defect" in § 72.216(a) consistent with the definition of "defect" in 10 CFR part 21? What is the purpose of the reporting requirements in proposed § 50.72(b)(2)?

Response. Section 72.216(a) states that cask users must report defects discovered in storage cask systems, structures, and components important to safety and any instance in which there is a significant reduction in the effectiveness of a cask's confinement system. This information is necessary to inform the NRC of potential hazards to the public health and safety. Proposed § 72.216(a) is not being revised to replace the word defect, because the definition of "defect" in 10 CFR part 21 is compatible with the intent of this reporting requirement. However, proposed § 50.72(b)(2) is being revised to clarify such reporting, in order to avoid an apparent duplication of reporting requirements.

48. *Comment.* Proposed § 72.234(d)(3) requires a composite record for all casks to be maintained by the cask vendor "for the life of the cask." It further states that the vendor would not necessarily be in a position to know how long the general license will be extended; thus, this provision should be clarified.

Response. The intent of this section is that cask vendors should maintain a record of all casks that are fabricated and sold or leased to power reactor licensees. This record would be used by the NRC to confirm information supplied by cask users and to determine whether or not a cask vendor will submit an application for cask design reapproval. The commenter raised a valid point, thus, § 72.234(d)(3) has been revised to require only a composite record of casks fabricated.

49. *Comment.* The Commission has not demonstrated the practical utility of requiring cask fabrication initiation and completion dates to be included as part of the cask record in § 72.234(d)(2) (iv) and (v).

Response. The purpose for including the cask fabrication initiation and completion dates in a cask record is to ensure that any safety problem that might arise related to fabrication procedures of a particular cask model can be traced and corrected in all casks of that model. For instance, if a faulty batch of steel is fabricated into closure bolts, which could be discovered through quality assurance procedures, these fabrication dates would enable the staff to determine which specific casks were involved. Thus, corrective actions could be taken, if necessary, based on this information.

50. *Comments.* Although § 72.6(b) [§72.6] provides for issuance of a

general license, § 72.6(c) might be interpreted to disallow storage of spent fuel in an ISFSI by a licensee under the general license, unless the holder of such a license also has a specific license for that purpose. One commenter suggested that existing § 72.6(c) be revised or clarified to specifically provide for storage of spent fuel under a general license without the requirement for a specific license, as long as the provisions of subpart K are met.

Response. Paragraph 72.6(c) has been revised to make an exception of spent fuel storage under a general license according to the provisions of subpart K. Subpart K sets forth conditions under which the holder of a power reactor operating license may store spent fuel under the general license being promulgated by this rulemaking. Conditions set forth in § 72.6 are now considered sufficient to allow storage of spent fuel under the general license. However, it is not intended that this rule serve as authorization for storage of spent fuel in amounts or for durations beyond those provided for in a power reactor license.

Having considered all comments received and other input, the Commission has determined that the following final rule should be promulgated.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment, and therefore an Environmental Impact Statement (EIS) is not required. The finding is premised on two actions, which are (i) the licensing of an operating reactor for a particular site for which an EIS has been previously prepared and (ii) the independent certification of spent fuel storage casks for use at any reactor site. Thus, the rule does not add any significant environmental impacts and does not change any safety requirements. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These

requirements were approved by the Office of Management and Budget with approval numbers 3150-0011 and 3150-0132.

Public reporting burden for this collection of information is estimated to average 134 hours per response for a power reactor licensee and 2,448 hours per response for a cask vendor licensee including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Paperwork Reduction Project (3150-0011 and 3150-0132), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission prepared a preliminary regulatory analysis for the proposed rulemaking on this subject. The analysis examined the benefits and impacts considered by the Commission. The Commission requested public comments on the preliminary regulatory analysis, but no comments were received. No changes to the regulatory analysis are considered necessary, so as separate regulatory analysis has not been prepared for the final rule.

Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule, if adopted, will not have a significant economic impact on a substantial number of small entities. This final rule affects licensees owning nuclear power reactors. Owners of nuclear power reactors do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121.

Only one cask model is currently being used to store spent fuel under 10 CFR part 72, but an additional three cask models are being certified under § 72.214 of this final rule. Companies involved in the design, manufacture, and sale of casks are large private entities employing more than 500 persons and having sales in excess of \$1 million. Some companies involved in the actual sale of these casks may not employ over 500 persons, but have sales in excess of

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\$1 million. These companies may fall within the scope of "small entities" as defined above, but there are not a substantial number of them. The Preliminary Regulatory Analysis, which was made available for public comment when the proposed rule was published, analyzed potential impacts on cask vendors. No comments were received on the analysis. In any case, cask vendors will decide whether or not to submit applications for cask design approval based on their analysis of the potential market.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, thus, a backfit analysis is not required, because these amendments do not contain any provisions which would impose backfits as defined in § 50.109(a)(1).

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalty, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, and Reporting and recordkeeping requirements.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 170

Byproduct material, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors; Source material, Special nuclear material.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Nuclear Waste Policy Act of 1982, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following revisions to 10 CFR part 72 and conforming amendments to 10 CFR parts 50 and 170.

56 FR 40664

Published 8/15/91
Effective 9/16/91

Revisions to Procedures to Issue Orders; Deliberate Misconduct by Unlicensed Persons

See Part 2 Statements of Consideration

57 FR 33426

Published 7/29/92
Effective 8/28/92

Minor Amendments to the Physical Protection Requirements

See Part 73 Statements of Consideration

57 FR 55062

Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

58 FR 17948

Published 4/7/93
Effective 5/7/93

10 CFR Part 72

RIN 3150-AE15

List of Approved Spent Fuel Storage Casks: Additions

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its list of approved spent fuel storage casks to add one spent fuel storage cask to the list of approved casks. This amendment will allow holders of power reactor operating licenses to store spent fuel in this approved cask under a general license.

EFFECTIVE DATE: May 7, 1993.

ADDRESSES: Copies of the environmental assessment and finding of no significant impact are available for inspection and/or copying for a fee at the NRC Public Document Room, 2120 L Street, NW, (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from the individuals listed under the next heading below.

FOR FURTHER INFORMATION CONTACT: Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3803, or Mr. James F. Schneider, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2692.

SUPPLEMENTARY INFORMATION:

Background

The NRC published a notice of proposed rulemaking in the *Federal Register* on June 26, 1992 (57 FR 28645). The comment period closed on September 9, 1992, but was subsequently reopened, as discussed below. The proposed rule would have amended 10 CFR 72.214 to include two additional spent fuel storage casks (i.e., the Transnuclear, Inc., TN-24 cask and the Pacific Sierra Nuclear Associates, VSC-24 cask) on the list of approved spent fuel storage casks that power reactor licensees may use under the provisions of a general license.

Subsequent to the expiration of the September 9, 1992 public comment period, the NRC took steps to implement the provision of § 2.790(c) of its regulations (41 FR 11808 (1976)) that provides that information submitted to NRC in a rulemaking proceeding which subsequently forms the basis for a final rule will not be withheld from public disclosure by NRC. Accordingly, on January 21, 1993, additional information, which was previously categorized as vendor proprietary information, was placed in the Public Document Room (PDR) and all Local Public Document Rooms. The additional information made available in the PDR related only to the VSC-24 cask. The

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second cask (TN-24) will be covered separately in a subsequent notice. In addition, the comment period for the June 26, 1992, proposed rule on the VSC-24 cask was reopened to provide opportunity for public comment on the additional information (January 21, 1993; 58 FR 5301). This comment period expired on February 22, 1993. Further NRC rulemaking activities are planned for the TN-24 cask which is, therefore, not covered in this notice of final rule.

Section 218(a) of the Nuclear Waste Policy Act of 1982 (NWPA) includes the following directive: "The Secretary (of DOE) shall establish a demonstration program in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear power reactor sites, with the objective of establishing one or more technologies that the (Nuclear Regulatory) Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission." After subsequent DOE technical evaluations and based on a full review of all available data, the Commission approved dry storage of spent nuclear fuel in a final rule published in the *Federal Register* on July 18, 1990 (55 FR 29181). The final rule established a new subpart K within 10 CFR part 72 entitled "General License for Storage of Spent Fuel at Power Reactor Sites."

Irradiated reactor fuel has been handled under dry conditions since the mid-1940's when irradiated fuel examinations began in hot cells. Light water reactor fuel has been examined dry in hot cells since approximately 1960. Some of these fuels have been stored continuously in hot cells under dry conditions for approximately two decades. Experience with storage of spent fuel in dry casks is extensive. (54 FR 19379 (1990)). Further, as discussed below, the United States has extensive experience in the licensing and safe operation of independent spent fuel storage installations (ISFSI's). At the beginning of 1993 five site specific licenses for dry cask storage had been issued. They are: Virginia Power's Surry Station, issued July 2, 1986; Carolina Power and Light's (CP&L) HB Robinson Station, issued August 13, 1986; Duke Power's Oconee Station, issued January 29, 1990; Public Service of Colorado's Fort St. Vrain facility, issued November 4, 1991; and Baltimore Gas and Electric's (BG&E) Calvert Cliffs Station, issued November 25, 1992. All have commenced operation and loaded fuel with the exception of BG&E. Two

hundred and fifty-two assemblies are in storage at Virginia Power, 56 assemblies are in storage at CP&L, 96 assemblies are in storage at Duke Power, and 1482 fuel elements are in storage at Public Service of Colorado; BG&E anticipates loading fuel later in 1993.¹

As a result of the growing use of dry storage technology experience, NRC has gained over 25 staff years of experience in the review and licensing of dry spent fuel storage systems. To further support the NRC technical staff, the agency draws upon the knowledge and experience of outside scientists and engineers recognized as experts within their respective fields in the performance of the independent safety analysis of the systems and components submitted by applicants for dry cask licenses or certification. Reviews of numerous applications, seeking either site-specific ISFSIs, certificates of compliance or approval of a topical report, have been conducted over the past 7 years.

Section 133 of the NWPA states, in part, that "the Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under section 218(a) for use at the site of any civilian nuclear power reactor." This directive was implemented on July 18, 1990 (55 FR 29181) by the publication in the *Federal Register* of a final rule establishing a new subpart L within 10 CFR part 72 entitled "Approval of Spent Fuel Storage Casks." As a result of that 1990 rulemaking, four dry casks were listed in § 72.214 of subpart K as approved by the NRC for storage of spent fuel at power reactor sites under a general license.

The final rule adds one additional spent fuel storage cask, the VSC-24 cask, to the list of approved casks in § 72.214. The cask being approved, the VSC-24 cask, is discussed in further detail below. In addition, based on public comments, the Safety Evaluation Report (SER) and Certificate of Compliance for the VSC-24 were modified. Each modification is discussed below as part of the "Analysis of Public Comments" section of this *Federal Register* notice.

Pacific Sierra Nuclear Associates (PSNA) submitted a "Topical Report on the Ventilated Storage Cask System for Irradiated Fuel" for their VSC-24 cask in February 1989. (VSC means "ventilated storage cask." Twenty-four (24) refers to the number of individual spent fuel assemblies which the VSC-24

is designed to hold.) The NRC completed its review and issued its Safety Evaluation Report (SER) in April 1991 approving the Topical Report for referencing in a site-specific license application. PSNA later submitted its approved Topical Report in the form of a "Safety Analysis Report for the Ventilated Storage Cask System" in November 1991 requesting certification for use under a general license. The NRC conducted additional evaluations and issued a draft Certificate of Compliance and draft SER, dated April 1992, in support of the Notice of Proposed Rulemaking published in the *Federal Register* on June 26, 1992. Based on further staff review and analysis of public comments, with this final rulemaking, NRC is approving the VSC-24 cask for use under a general license and is simultaneously issuing a final Certificate of Compliance and SER.

The paramount objective of 10 CFR part 72 is protecting the public health and safety, by providing for the safe confinement of the fuel and preventing the degradation of the fuel cladding. The review criteria used by the NRC for review and approval of dry cask storage under 10 CFR part 72 consider the following: Siting, design, quality assurance, emergency planning, training, and physical protection of the fuel. Included in the review of a specific system, either for a certificate of compliance or a site-specific license, are the following: Earthquakes, high winds, tornadoes, tornado driven missiles, lightning, and floods. In addition, applicants must demonstrate to NRC's satisfaction that their proposed dry cask system will resist man-made events such as explosions, fires and drop or tipover accidents.²

The VSC-24 cask, when used in accordance with the conditions specified in its Certificate of Compliance, meets the requirements of 10 CFR part 72. This conclusion is reached after a detailed evaluation of the VSC-24 cask by the NRC as documented in the NRC staff's SER. Thus, use of the VSC-24 cask, as approved by the NRC, provides adequate protection of the public health and safety and the environment. Holders of power reactor operating licenses under 10 CFR part 50 will be permitted to store spent fuel in this cask under a general license. A copy of the Certificate of Compliance is available for public inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

¹ EIA Service Report SR/CNEAF/92-01 Spent Fuel Discharges from U.S. Reactors 1990, March 1992.

² The design bases for these events and accidents are contained within 10 CFR part 72.

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Public Responses

In response to the June 26, 1992, and January 21, 1993, **Federal Register** notices, 232 comments were received from individuals, public interest groups, environmental groups, associations, industry representatives, Congressional representatives, and States. Although a number of the comments were received after the respective September 9, 1992 and February 22, 1993 comment closure dates for the two notices, NRC has considered comments received including those received after the comment closure dates.

As a part of this rulemaking action, NRC received requests for further opportunity to comment and in particular, for NRC to hold a public hearing to review the merits of this action. One request was from Frank J. Kelley, Attorney General of the State of Michigan, dated December 30, 1992, which requested a public hearing. Chairman Selin responded by letter of January 25, 1993, and proposed a transcribed public meeting with the Attorney General to discuss the dry spent fuel cask approval process, to answer questions, and to provide opportunity for interested members of the public to present comments. That public meeting was held on February 23, 1993, from 9:30 a.m. until 12 noon in Lansing, Michigan. The Attorney General, his staff, representatives of the NRC staff, and approximately one hundred interested citizens attended the meeting. The meeting was transcribed and the transcript of that meeting, including questions and comments of the Attorney General and citizens attending and participating in the meeting, has been considered by the NRC and is included in the analysis of comments. Additional written comments received within five working days subsequent to the meeting have also been considered by the NRC and are included in the analysis of comments below. (See comment response number 57 for information on NRC's response to request for a hearing.)

A number of comments were related to disposal of high-level waste, use of dry cask storage technology in general, or use of the VSC-24 cask specifically by Consumers Power Corporation at the Palisades Nuclear Generating Station. Examples of each include:

—Consumers Power Company knew years in advance that the day would come when their spent fuel pool would be full. They should have planned ahead of time for this day. Consumers Power should be required to build a new spent fuel pool, store

their waste elsewhere, or to shut down the plant at Palisades;

- Concern was expressed that the review process might become unreasonably delayed and without approval for additional storage capacity, the Palisades plant ultimately will be forced to shut down, a result that would have serious economic consequences for southwestern Michigan.
- The Federal government's failure to resolve questions about the permanent storage of nuclear wastes leaves both the plant and public with limited options: additional storage in pools, additional storage in dry casks or plant shutdown. The federal government has an obligation to resolve the issue of permanent or interim storage. It would be difficult to overstate the need for dispatch in doing so, as hundreds of American communities will eventually face this problem.
- Ten years ago, there was an erroneous assumption that the search for and construction of a final resting place for high-level waste would be much swifter than it has been. A "demonstration" program required by law was supposed to have been for temporary storage. Because of the societal and technical obstacles which radioactive waste disposal presents, even a temporary "demonstration" program is likely to have much longer-term implications. Temporary dry cask storage in Michigan should not become de facto permanent disposal.
- It is not fair to the public of Michigan to link Consumers Power Company's attempts to continue the safe storage of its nuclear fuel with the insistence by others that we shut down Palisades and every other nuclear plant in the country.

These comments deal with broad policy and program issues relating to the storage and disposal of high-level radioactive waste including the Department of Energy's repository program. However, commenters will find a summary of relevant information on many of these broad issues in the responses to comments set out in response numbers 41, 52, 61, and 69 in the following analysis of comments.

Many of the comment letters contained comments that were similar in nature. These comments have been grouped as appropriate and addressed as single issues. The NRC has identified and responded to 75 separate issues that include the significant points raised by each commenter.

Many commenters discussed topics that were not the subject of this

rulemaking and thus were not specifically addressed by the staff as a part of this final rulemaking action. These comments expressed opposition to the use of dry cask storage and included suggestions such as the following:

- (1) Nuclear plants generating radioactive waste should be shut down;
- (2) The production of radioactive waste should be stopped when the existing spent fuel pool (and off-load-reactor capacity) is full;
- (3) A formal hearing should be required at each site using dry storage casks;
- (4) The Palisades Nuclear Plant should be shut down;
- (5) The embrittlement of the reactor pressure vessel at Palisades dictates that the plant be shut down and no additional spent fuel generated;
- (6) The use of nuclear power should be stopped and existing sites cleaned up;
- (7) The use of storage only casks at Palisades is a violation of public trust; and
- (8) A research and development program should be conducted on productive uses of spent fuel and on alternative energy sources.

Finally, many commenters expressed concern over the ability of dry cask storage designs to safely store spent fuel. The following responses to these comments reflect a small but important portion of NRC's review of health, safety, and environmental aspects of the VSC-24 cask, to ensure that the cask is designed to provide protection of the public health and safety and environment under both normal conditions and severe, unlikely, but credible accident conditions. Dry cask storage systems are massive devices, designed and analyzed to provide shielding from direct exposure to radiation, confine the spent fuel in a safe storage condition, and prevent releases to the environment. They are designed to perform these tasks relying on passive heat removal and confinement systems without moving parts and with minimal reliance on human intervention to safely fulfill their function for the term of storage. The designs include margins of safety under both normal and accident conditions to provide additional assurance of protection for the public health and safety, the common defense and security and the environment.

Analysis of Public Comments

A. A number of commenters raised issues relating to cask handling and the

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ability of the cask to withstand drop and tipover accidents.

1. *Comment.* Some commenters expressed concern about the operational safety of the VSC-24 cask relating to loading the multi-assembly sealed basket (MSB) into the ventilated concrete cask (VCC) and retrieving it. Particularly, the commenters contended that the loading procedure of placing the MSB transfer cask (MTC) on top of the VCC is precarious and the procedure for retrieving the MSB from the VCC is not clearly explained. One commenter indicated that there are unreviewed safety issues associated with handling equipment including the lifting cables, lifting yoke, lugs, and transfer vehicle, that need further review. Another commenter asked about the training and oversight of personnel performing these activities. Another asked, that if the transfer cask is on top of the VCC in the fuel handling building and a seismic event occurs causing tipover, would this type of event be considered in a § 50.59 evaluation?

Response. Use of the VSC-24 cask system inside the fuel handling building (including use of the MTC to load and retrieve the MSB from the VCC) would be conducted in accordance with the 10 CFR part 50 reactor operator's license. These cask handling operations, including loading, retrieval and training, must be evaluated by the general licensee, as required by 10 CFR 72.212(b)(4), to ensure that the procedures are clear and can be conducted safely. The MTC and MSB have been evaluated against the criteria for controlling heavy loads found in NRC publication NUREG-0612 ("Control of Heavy Loads at Nuclear Power Plants") and American National Standards Institute (ANSI) N14.6, "Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds or More." The lifting yoke associated with the MTC is a special purpose device designed to ANSI N14.6 criteria to ensure that the yoke can safely lift the wet MTC containing the MSB out of the spent fuel pool and can safely lift the dry MTC and MSB to the top of the VCC.

Specific requirements for lifting yokes, cables, and lugs have been identified in the Certificate of Compliance and SER and are not unreviewed safety issues. Part 72 requires that, prior to the use of a cask under the general license, the licensee determine whether activities related to storage of spent fuel under the general license involve any unreviewed safety questions or change to the facility technical specifications, as provided under 10 CFR 50.59. Load handling

activities and possible load drop events and structural and radiological consequences are necessary evaluations under 10 CFR 50.59.

For example, the utility's specific analyses for load handling activities at the Palisades plant illustrate the type of mandatory evaluation by the cask user that NRC requires before the VSC-24 cask can be used under 10 CFR part 72, subpart K. Among others, one specific event analyzed is the evaluation of the drop of a loaded MTC onto the VCC with tipover of the MTC onto the load distribution system in the track alley area. This analysis would encompass the tipover scenario described above by the commenter who questioned whether it would be part of a utility's § 50.59 evaluation. The result of this analysis shows that the MSB would not fail and that, while local yielding of the transfer cask may occur, the transfer cask would not fail and could be lifted back to the pool for recovery of all spent fuel in the cask.

2. *Comment.* One commenter questioned whether, if the MTC were lifted up by the MSB, the weight of the loaded MSB and the MTC would bear on the MSB welds. Another commenter questioned whether the MSB lifting rings could support the weight of the MSB and MTC.

Response. The weight of the MSB and the MTC could be supported by the MSB structural weld and the rings. The weld has been analyzed for this situation and was found to meet the design criteria of paragraphs 4.2.1.1 and 4.2.1.2 of ANSI N14.6, 1986. This standard, which is considered conservative, is specifically written for special lifting devices for shipping containers of radioactive materials. This situation of lifting both the MSB and MTC will not occur under normal operating conditions. However, if it does occur, as discussed above, the weld and the rings can support the weight of the MSB and MTC.

3. *Comment.* One commenter noted that tiles at the bottom of the VCC could break when the MSB is lowered onto them.

Response. There are numerous ceramic tiles arranged on the base of the VCC which serve as a separator between the flat bottom surface of the MSB and the parallel surface of the VCC liner to prevent the possibility of localized corrosion. Although these tiles could break, there is a substantial margin of safety to prevent breakage. However, if some breakage occurs, the tiles will still perform their function of providing a slight gap between the MSB and the VCC. Although it is not necessary, the Certificate of Compliance has been

revised to include a statement that the operating procedures for handling the MSB over the VCC should include the consideration for reducing the likelihood of fracturing the ceramic tiles by impact load.

4. *Comment.* One commenter questioned why the NRC allows an 80 inch lift height when a drop of over 18 inches may cause enough damage to compromise shielding. Another commenter indicated that the operation of moving the VSC-24 cask from the heavy haul trailer across a piece of "bridge steel" to the storage pad sounded dangerous. One commenter also stated that if the MSB is not centered inside the VCC, possible damage could occur to the coating of the VCC liner or the ceramic tiles on the bottom of the VCC.

Response. The NRC evaluated a possible drop of the cask and has established conditions limiting the lift height for the VSC-24 cask. These conditions include a requirement to inspect the cask after any tipover or drop from a height greater than 18 inches, and the prohibition against lifting the VSC-24 cask to a height greater than 80 inches. The purpose of the 80 inch lift condition is to ensure that the MSB maintains its confinement capability even in the event of a drop of the VSC-24 cask. The MSB has been designed to meet the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) code under Service Level D conditions and a drop of 80 inches should only result, at most, in denting of the MSB shell. The purpose of the inspection for any drop from a height greater than 18 inches is to ensure that the shielding is not compromised and that any damage is immediately identified and repaired. On-site transport procedures with auxiliary equipment such as the "bridge steel" described in the Safety Analysis Report (SAR) have been reviewed and are considered to be appropriate to the design, suitable for use and to meet safety requirements which are not part of the regulations in 10 CFR part 72. Possible damage to the ceramic tiles was discussed in the response to Comment Number 3. Finally, damage to the coating of the VCC liner would not have safety significance because the liner is not a confinement boundary and does not contribute significantly to shielding. The principal purpose of the VCC liner is to provide an inner form for the concrete during fabrication.

5. *Comment.* One commenter indicated that if there were a problem with a VSC-24 cask, it could not be removed to the fuel handling building because that is not allowed when the

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temperature is below 0 °F, and that the temperature in Michigan and Wisconsin is often below 0 °F.

Response. The purpose of restricting VSC-24 cask movement to ambient temperatures above 0 °F is to prevent the possibility of brittle fracture of the MSB in the event of a drop accident. There is a 50 °F margin of safety because the MSB material maintains ductile properties at a test temperature of -50 °F. If a situation for return to the fuel handling building arises while the ambient temperature is below 0 °F, a key option would be for the licensee to determine that the actual MSB material temperature is above 0 °F. In that event movement of the MSB could be accomplished safely without concern for brittle fracture. The MSB would most likely be above 0 °F because of the heat produced by the stored spent fuel. Another option available to a licensee would be not to move the MSB until an ambient temperature above 0 °F is reached.

6. *Comment.* Some commenters stated that a cask tipover accident while the VSC is on the pad was not considered, even though this type of accident was considered for other casks. Some commenters also noted that drop evaluations of the MSB were performed for only one orientation, although the NRC requires multiple drop orientations for other designs.

Response. A cask tipover accident was not specifically performed for the VSC-24 cask. However, PSNA performed an engineering analysis of cask drops from both vertical and horizontal positions which represent more severe accidents than a tipover. Therefore, NRC concluded it was not necessary to perform a tipover analysis. With respect to drop orientation, the MSB was analyzed for both vertical and horizontal drop orientations.

7. *Comment.* One commenter asserted that the design of the MSB is such that it is susceptible to buckling under certain off-normal and accident conditions. The commenter further indicated that this is a departure from previous spent fuel cask design and licensing criteria which allow no buckling of the basket structure.

Response. The NRC believes that this commenter refers to the fuel basket and not the MSB shell. The MSB basket structure was analyzed and the NRC concluded that buckling would not be a safety concern as discussed below. The critical load for buckling was calculated for a single storage tube and compared to the actual load under a vertical deceleration of 124 g that would result from a drop of 80 inches. The results of the analysis indicate that there is a

safety factor of 5 for a tube against buckling. Because of the conservative approach in analyzing a single fuel storage tube rather than the entire basket, the NRC believes that a higher safety factor would exist for the basket assembly. Thus, the NRC is not departing from previous design and licensing criteria.

8. *Comment.* Some commenters noted that the NRC allowed PSNA to use Electric Power Research Institute (EPRI) report NP-4830 in their VSC-24 cask SAR, but did not allow vendors of metal casks to reference this report in their SAR's.

Response. The concept set forth in EPRI Report No. NP-4830 is to provide for consideration of the cask reinforced concrete bearing pad behaving as a pad on an elastic foundation. In previous structural reviews of cask systems, the bearing pad has been very conservatively assumed to be infinitely rigid. The response of the pad to a dropped or overturned cask has an influence on the magnitude of the force the spent fuel support system and confinement envelope must resist. The NRC identified various issues related to the details of the concept and its application by the applicant.

Rather than relying on the EPRI report, NRC independently calculated the stresses experienced by the MSB during a drop accident. Based on these independent calculations, NRC confirmed that the design of the MSB will provide an ample margin of safety during a drop accident. Therefore, NRC concluded that the design of the MSB was acceptable and that there was reasonable assurance that the confinement integrity will be maintained even if the postulated drop accident does occur.

In order to provide additional information on the application of the concept of an elastic bearing pad to spent-fuel casks, the NRC has initiated a contract to conduct drop tests of casks from heights in the 18 to 80 inch range. This should provide test data that would be used to assess the capability of the specific computational techniques contained in EPRI NP-4830 to predict the behavior of dropped casks. Following this testing, the NRC will consider the issue of the applicability of the EPRI report, including its applicability to a postulated drop of a steel cask on concrete pads.

9. *Comment.* The effect of a dynamic load factor (DLF) on the MSB was not considered nor was it shown to be insignificant.

Response. The effect of a DLF was considered and found to be significant. The applicant applied a maximum

possible DLF of 2.0 to the average decelerations acting on the MSB. As a result of using a DLF of 2.0, the decelerations were increased from 62 g to 124 g and 22 g to 44 g respectively, for the vertical and horizontal orientations. As noted above in comment response number 8, although NRC staff did not endorse the methods used by the vendor to determine these loads, the NRC independently concluded that these design loadings are acceptable.

10. *Comment.* One commenter provided a calculation of the results of a hypothetical accident involving a VSC-24 cask. The conditions of the hypothetical accident were a cask tipover while the cask was under maximum internal pressure. The results indicated that the welds of the MSB would be overstressed.

Response. The NRC reviewed this calculation and based on that review, concluded the calculation did not state the consequences of the hypothetical accident. Most importantly, the size and configuration of the welds assumed in the calculation understated the strength of the welds and their ability to withstand the hypothetical event. The strength of these welds, which meet ASME Boiler and Pressure Vessel Code criteria, has been thoroughly analyzed by the applicant and the NRC. Although a cask tipover was not specifically performed for the VSC-24 cask, a horizontal drop accident, more severe than a tipover, was analyzed as a bounding case. This analysis demonstrated that, under the conditions of a horizontal drop while the MSB is under maximum internal pressure, the welds would not be overstressed.

B. A number of commenters raised issues relating to releases of radioactivity from surface contamination and leakage from the casks under normal and accident conditions.

11. *Comment.* Some commenters expressed concern that there would be a small release of radioactive particulates from the MSB exterior surface during off-normal conditions and that the radioactive releases from storage casks, when combined with other releases from the reactor, would exceed dose limits at the reactor site boundary.

Response. The NRC interprets this comment to mean that during off-normal conditions there is the potential for release of radioactive contamination from the exterior surface of the MSB. The consequences of any release of contamination from the MSB exterior surface (whether normal or off-normal) is evaluated in the SAR. However, the

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Certificate of Compliance, in Section 1.2.5, "Maximum MSB Removable Surface Contamination" contains specifications for limiting the amount of radioactive contamination permitted on the external surface of the MSB. These specifications are conservative, and are based, in part, on equivalent criteria used for the safe transportation of radioactive material (see 10 CFR 71.87(i)). Hence, compliance with them will ensure that off-site dose limits of the NRC's regulations will be met for normal and off-normal conditions alike. The general licensee must also use the cask in accordance with the reactor operating license and the Certificate of Compliance. The general licensee is also responsible for complying with other Commission regulations regarding radioactivity release limits. Therefore, potential releases from the MSB when combined with routine releases from the reactor should not exceed dose limits at the site boundary.

12. *Comment.* Commenters indicated that casks placed close to the shore of Lake Michigan represent a serious threat to the environment, especially to the Great Lakes which have 20 percent of the world's surface fresh water.

Response. A utility's use of the VSC-24, for the storage of spent fuel in casks at a reactor site, would not have a significant impact on the environment. This finding is supported by the NRC safety and environmental evaluations for the VSC-24 cask, including the applicant's demonstration of compliance of the cask with NRC requirements, as well as by the 1990 rulemaking on dry cask storage and the 1984 and 1989 waste confidence proceedings. While the VSC-24 cask is being approved for use under a general license, it can only be used by a licensee provided the reactor site parameters (e.g., average ambient temperature, seismic accelerations, flood water velocity, fires and explosions, etc.), are enveloped by the cask design basis, as specified in the SAR and SER. Proper use of a certified storage cask at any site (whether near Lake Michigan, a river, a bay, or an ocean) with site parameters that are bounded by the cask design, would not have a significant impact on the environment.

13. *Comment.* Some commenters expressed concern that extremes in temperatures and humidity would cause dry casks to leak.

Response. The VSC-24 cask design was analyzed for possible effects of extremes in temperature and humidity. These analyses showed no leakage will occur as a result of temperature or humidity extremes. The thermal analysis presented in the SAR and the

NRC evaluation documented in section 4.0 of the SER considered temperature extremes for both hot and cold conditions. Based on this analysis, the NRC concludes no breach of the MSB confinement barrier or leakage from the MSB will occur.

14. *Comment.* Some commenters speculated that a catastrophic release of radiation may occur from a possible explosion caused by spontaneously flammable uranium hydride in the presence of oxygen. It is postulated that the temperature inside the cask will be hot enough to rupture fuel rods which will, in turn, cause the presence of hydrogen to create uranium hydride.

Response. The NRC does not believe that an explosion inside a storage cask caused by flammable uranium hydride in the presence of oxygen is credible for the following reasons. Oxygen gas is not expected to be present because all casks are designed to have an inert atmosphere. Further, the formation of uranium hydride is not credible due to the lack of a significant source of hydrogen. Finally, all casks are designed so that the internal temperature will not cause the fuel rods to rupture. Therefore, the conditions necessary for this scenario to occur would not exist.

15. *Comment.* The SER states that there is no credible chain of events that could spread contamination from the MSB. Only air-coolant loss due to blockage was considered. Commenters indicated that the SER should also consider the effect of flooding of the hot cask and steam explosion. A concern was also expressed regarding the structural integrity of the pads which may, in the case of Palisades, be built on a sand dune area that shifts.

Response. The SER for the VSC-24 cask did consider the effects of flooding as well as air-coolant loss due to blockage of the vents. The analysis showed the release of contamination from the exterior surface of the MSB due to flooding is possible but the resultant contamination would not be significant. Steam explosions involving water contacting molten metal are not credible under dry spent fuel storage conditions. In addition, explosions due to steam forming under flooding conditions are not considered credible due to the fact that if steam were to be formed, it would be released non-violently through the vents.

With respect to the comment on structural integrity of the pads, the certificate of compliance requires, per 10 CFR 72.212(b), that written evaluations be performed by the licensee prior to cask use to establish that cask storage pads and areas have been designed to adequately support the

static load of the stored casks. Consequently, the structural integrity of the pads would have to be evaluated and verified before the licensee could use the VSC-24 at the Palisades site or at any site.

16. *Comment.* A number of comments related to gaseous releases from dry storage casks. Commenters asked the following questions. What happens to gaseous components of the decay chain? Are they released to the environment? If not, is pressure buildup over time being considered? A commenter expressed the opinion that casks should have individual radionuclide emission monitoring. An issue was raised about the effects of release of krypton-85 (Kr-85) gas on electric conditions in the atmosphere.

Response. The gaseous components of the decay chain are expected to be retained within the matrix of the spent fuel or within the fuel rod. In the case of pinhole leaks in the fuel rod cladding, the MSB is designed as a secondary confinement barrier to retain gaseous products. Therefore, because no gaseous components are released to the environment, no routine monitoring of effluent from the outlet vents is required. The primary reason for requiring the use of ASME section III instead of other standards is to ensure the confinement of fission products. Pressure build-up of gaseous components in the MSB is not significant due to the age of the fuel and integrity of the fuel rod cladding; however, the MSB has been analyzed for a hypothetical condition in which all the fuel rods rupture. The resulting pressure within the MSB is negligible. The purpose of maintaining an inert atmosphere in the MSB cavity is to ensure that fuel rod cladding degradation does not occur, thereby preventing gross fuel rod cladding rupture. In addition to ensuring that new pin hole leaks do not develop in the fuel clad during the storage period, the licensee is responsible for monitoring the environment within the MSB prior to its opening to ensure that no unplanned release of radioactive material takes place. The amount of Kr-85 that could be potentially released from dry cask storage is so small that it would not significantly affect the physics or chemistry of the atmosphere.

C. A number of comments were received that focused on monitoring, surveillance, and inspection activities associated with dry cask storage of spent fuel, particularly as they relate to the VSC-24 cask.

17. *Comment.* Some commenters suggested that, with respect to the VSC-24 cask, the NRC did not enforce 10 CFR

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72.122(h)(4) which reads, "Storage confinement systems must have the capability for continuous monitoring in a manner such that the licensee will be able to determine when corrective action needs to be taken to maintain safe storage conditions," and 10 CFR 72.122(i) and 10 CFR 72.128(a)(1) which require monitoring of systems and components that are important to safety over anticipated ranges of normal and off-normal operation. Also, one commenter suggested that because the VSC-24 cask requires surveillance to ensure that the vents are not blocked, the requirement that the cooling system must be a passive system (10 CFR 72.236(f)) is violated.

Response. NRC approval of the VSC-24 cask system is not inconsistent with 10 CFR 72.122(h)(4), 72.122(i) or 72.128(a)(1). Although the cited sections of 10 CFR part 72, subpart F, refer to "monitoring" or "continuous monitoring," they do not specify the details for particular monitoring programs to allow the NRC to require monitoring programs that are appropriate for the particular storage system design. The NRC has and will consider continuous monitoring where it believes continuous monitoring is needed to determine when corrective action needs to be taken. To date, under the general license, NRC has accepted continuous pressure monitoring of the inert helium atmosphere as an indicator of acceptable performance of mechanical closure seals for dry spent fuel storage casks.

The NRC does not consider such continuous monitoring for the VSC-24 cask double weld seals to be necessary because: (1) There are no known long-term degradation mechanisms which would cause the seal to fail within the design life of the MSB and (2) the possibility of corrosion has been included in the design (See SER Section 5.3.1). These conditions ensure that the internal helium atmosphere will remain. Therefore, an individual continuous monitoring device for each MSB is not necessary. However, the NRC considers that other forms of monitoring casks including periodic surveillance, inspection and survey requirements, and application of preexisting radiological environmental monitoring programs of part 50 licensees during the period of use of the MSB canisters with seal weld closures can adequately satisfy the requirements of 10 CFR 72.122 (h)(4).

With respect to the issue of instrumentation and control systems to monitor systems which are important to safety (10 CFR 72.122 (i)), the user of the VSC-24 cask will, as provided in

Chapter 14 of the SER and in Section 1.3.1 of the Certificate of Compliance, be required to verify by a temperature measurement, the cask thermal performance on a daily basis to identify conditions which threaten to approach cask design temperature criteria. The cask user will also be required to conduct a daily visual surveillance of the cask air inlets and outlets as required by Chapter 14 of the SER and Section 1.3.1 of the Certificate of Compliance.

While the MSB and VCC are considered components important to safety that comprise the VSC-24 cask design, they are not considered operating systems in the same sense as spent fuel pool cooling water systems or ventilation systems which may require other instrumentation and control systems to ensure proper functioning. Hence, due to this passive design, temperature monitoring and surveillance activities are appropriate and sufficient for this design, they assure adequate protection of the public health and safety, and meet the requirements of § 72.122 (i).

18. *Comment.* Several commenters expressed concern related to the inlet and outlet vents, on the VSC-24 cask, which are necessary to allow cooling of the storage container by natural circulation. Some commenters also questioned the adequacy of the surveillance requirements for the VSC-24 cask and suggested that electronic continuous monitoring and recording of air outlet temperature should be required on each cask. Specific concerns include:

- (a) Vent blockage by bugs, webs, snow, and ice;
- (b) Frequency of vent outlet surveillance for blockage;
- (c) Drive-by or walk-through inspection is inadequate to observe outlet blockage; and
- (d) Critical temperatures associated with the VSC should be monitored.

Response. The NRC is requiring, as part of the VSC-24 Certificate of Compliance, that surveillance and measurement of the thermal performance of the cask be conducted by the licensee on a daily basis. The licensee is responsible for establishing the specific method of measurement; the licensee can measure the inlet and outlet air annulus temperatures, or it could also measure the MSB surface temperature, the VCC inner wall temperature or perform other appropriate measurements. The method selected by the licensee must provide a positive indication of the approach of

materials to cask design temperature criteria.

In addition, analyses of safety margins of components important to safety show that even assuming surveillance were not conducted at the required daily frequency, and both the inlet and outlet vents were blocked for a 30 hour period, there would still be no loss of safety function or any immediate threat to the health and safety of the public. This conclusion is based on the adiabatic heatup thermal analysis of the VSC-24 cask, which assumes that all vents are blocked, and no heat is rejected by the cask. The concrete and cladding temperature criteria that could be exceeded under this conservative analysis, assuming complete blockage, signify the onset of very slow degradation mechanisms, not an imminent loss of safety function.

The NRC also agrees with the comment that visual surveillance of exterior air inlets and outlets may be inadequate and may not lead to a positive determination of blockage because the design includes screens placed over the vents to prevent wildlife from entering the VCC. Consequently, the NRC has revised the Certificate of Compliance surveillance requirement to make the integrity of the screens be part of the visual surveillance. A physical examination of the vent is required if its associated screen shows any evidence of breach.

19. *Comment.* One commenter suggested that approval of the VSC-24 cask should be denied because the snow shield was eliminated and that the analysis of air flow of the VSC took it into consideration.

Response. The snow shield was eliminated because it was not considered effective in resolving the problem of vent blockage by snow. A visual surveillance requirement is considered more effective in addressing the issue of vent blockage by snow. The Certificate of Compliance has been revised to add a daily surveillance requirement, as discussed in Comment 18, which would include checking for snow blockage during periods of snow accumulation. In addition the inclusion of a snow shield in the original design actually decreased air flow and therefore, its removal increases the thermal efficiency of the cask.

20. *Comment.* One commenter questioned how the condition of the inlet vents is checked for damage after the lifting arms are inserted into the air inlets for transfer.

Response. Lifting the VSC-24 cask using the hydraulic roller skid, which involves insertion of lifting arms into the air inlets, has been analyzed. The

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results indicate that the shear and bearing capacities of the concrete surrounding the air inlet vents (per American Concrete Institute (ACI) criteria 349-85) are not exceeded and no damage is expected. Therefore, there is no need to inspect vents for damage following use of the hydraulic roller skid.

21. Comment. The general licensee must have specific plans for the constant and careful monitoring of the casks and for the safeguarding of the waste to prevent catastrophic accidents or terrorism.

Response. In accordance with 10 CFR 72.212(b)(5), each reactor licensee must have a physical security organization and program to detect intrusion into the protected area including acts of terrorism, and to take any corrective action. The physical security program, as well as environmental monitoring and radiation protection programs for each reactor facility, provide the necessary monitoring for the casks and safeguarding of the spent fuel. Thus, the licensee will be able to determine when corrective action needs to be taken to maintain safe storage conditions to protect the public health and safety. (Also see response to Comment Number 33 below).

D. A number of commenters raised technical issues related to the thermal analysis of the VSC-24 cask and thermal performance of the cask under normal, off-normal, and accident conditions.

22. Comment. One commenter questioned whether NRC intends to establish 75 °F as a standard ambient temperature criteria for all storage casks and expressed concern that this temperature may not be applicable for the majority of power reactor sites.

Response. The NRC does not intend to establish 75 °F, or other standard ambient condition criterion, for all cask designs. The cask vendor establishes ambient temperature criteria on which the cask is designed. In the case of the VSC-24 cask, PSNA chose 75 °F. Each reactor licensee can then only use those casks which have design bases that envelop the reactor site ambient temperatures. For example, if a power reactor site has an average annual ambient temperature greater than 75 °F, then that reactor licensee cannot use a cask with a 75 °F ambient design temperature.

23. Comment. One commenter questioned how heat transfer for the VSC-24 cask is affected by the fact that there are no provisions for centering the MSB inside the VCC.

Response. Heat transfer for the VSC-24 cask is not significantly affected by

lack of centering of the MSB inside the VCC. Therefore, no precise centering of the MSB inside the VCC is needed. However, the physical arrangement of the system restricts lateral movement and does not allow the MSB to be far from center as it is lowered into the VCC.

24. Comment. One commenter raised the concern that the VCC concrete temperatures do not comply with the ACI-349 temperature criteria.

Response. The NRC has accepted deviations from the ACI-349 Code, Appendix A.4 for the concrete temperature criteria. However, while accepting the deviation, the NRC has identified a specified maximum thermal expansion coefficient for fine and coarse aggregates in the concrete which allows operation at higher temperatures. The selection of specific fine and coarse aggregates in the concrete prevents microcracking between the cement and aggregates in the anticipated temperature range of the VCC. Thus, deviation from the ACI-349 temperature criteria is not a cause for concern and does not compromise safety.

25. Comment. One commenter claimed that NRC has used the unsupported assumption that 48 hours is sufficient time to reach thermal equilibrium for the irradiated fuel assemblies (high level radioactive waste) that have been removed from water storage and sealed in the metal canister.

Response. The commenter refers to the time period allowed for a loaded VSC-24 cask system to reach thermal equilibrium conditions. For the purpose of thermal equilibrium, the VSC-24 cask system is considered to be placed in service when the concrete cask cover plate is installed.

It should be noted that the Certificate of Compliance has been changed to require that the inlet and outlet air temperatures, for all VSCs placed in service, be measured until the cask reaches initial thermal equilibrium. Furthermore, a daily measurement of the thermal performance of the VSC-24 cask is required. Therefore, any reference to assumed 48 hour thermal equilibrium is covered by the enhanced surveillance requirements. The 48 hour period was selected to provide a basis for baseline measurements. There is no safety significance if thermal equilibrium is achieved in a shorter or longer time.

26. Comment. One commenter noted that in chapter 9 of the SER, the NRC staff found it necessary to impose a pre-operational test to verify the heat removal capacity of the VSC-24 cask system. The commenter claimed that

this was required because predicted fuel clad temperatures are a "mere" 4 °F below their design criteria on a 75 °F ambient day. It was further asserted that with a predicted fuel clad temperature of 4 °F below design criteria for the off-normal condition limit, even a successful pre-operational test would not assure that the design criteria is met within the bounds of statistical uncertainty, particularly since the calibration of their temperature sensing equipment has a tolerance of plus or minus 1 °F.

Response. The NRC has imposed a test to benchmark the heat removal capacity for the first VSC-24 cask placed in-service. However, the 4 °F margin stated on page 9-4 of chapter 9 of the SER cited by the commenter, is a typographical error. The correct margin is 24 °F, as stated on page 4-7 of the SER. This 24 °F margin is the difference between the maximum allowable fuel clad temperature and the calculated fuel clad temperature, assuming an average annual ambient temperature of 75 °F for normal continuous conditions. For off-normal conditions involving higher ambient temperatures, a maximum fuel clad temperature of 708 °F was calculated assuming an ambient temperature of 100 °F. This temperature is 4 °F below an acceptable fuel clad temperature criterion of 712 °F. The NRC accepted this margin on the basis of the following conservative factors applied in the off-normal case analyzed in the SAR:

a. The calculation assumes steady state conditions. It would take several days of sustained 100 °F ambient temperature to approach the calculated fuel clad temperature value of 708 °F.

b. The fuel temperature criterion is based on prevention of fuel failures due to long-term degradation mechanisms. Short term variations in the average temperature, such as when the daily summer average temperatures exceed 85 °F, have no effect on the long term degradation mechanisms that affect the fuel cladding. Therefore, the annual average 75 °F temperature would be a more realistic condition to use in the calculation than the 100 °F temperature actually used in the calculation.

c. Heat conduction in the axial direction is treated conservatively because little credit is taken for heat transfer out of the ends of the MSB canister.

d. Fuel clad temperature is treated conservatively because a peak heat generation rate rather than an average was used in the calculation.

These conservative factors used in the calculation of fuel clad temperatures provide reasonable assurance that the

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actual temperature will be lower than the calculated temperature, considering uncertainties, and therefore this 4 °F margin below the fuel clad temperature criterion is acceptable.

27. Comment. One commenter questioned whether cladding failures would affect the temperature of the MSB or the VCC and the heat removal capacity of the VSC-24 cask. Another asked why helium was used to fill the cask. The only helium cooled reactor in the country, Ft. St. Vrain, was operational merely 15% of the time.

Response. Fuel cladding failure is not expected to occur because the VSC-24 cask is designed to maintain an inert helium atmosphere inside the MSB to prevent fuel cladding failure. However, fuel cladding failure would neither affect the temperature of the MSB or VCC nor affect the heat removal capacity of the VSC-24 cask. The temperature of the MSB and the VCC depends on the heat generated by the fuel in the MSB, which is not affected by a fuel cladding failure. In addition, heat removal capacity of the VSC-24 cask depends on the airflow on the outside of the MSB which also is unaffected by fuel conditions inside the MSB. Helium was chosen because it is inert and it has good heat transfer characteristics. The fact that the Ft. St. Vrain reactor used helium as a coolant did not contribute to its operational problems.

28. Comment. One commenter wanted clarification of "approximately 24 kW," when referring to the heat source loaded into the first MSB for tests conducted by the licensee to verify heat removal capacity of the VSC system. The commenter also indicated that the Certificate of Compliance is overly restrictive in requiring a 24 kW heat load for the first cask because some reactors do not have spent fuel assemblies which could make up the 24 kW heat load. The commenter recommended that the requirement be changed to require that the first cask be loaded with a heat load as high as practicable (but not to exceed 24 kW) to verify the calculated heat removal capability. Another commenter asked why not test the cask with artificial thermal loads rather than with spent fuel.

Response. The intent of the language, "approximately 24 kW" was to provide some flexibility to a potential user because there is no way to ensure that the first fuel placed in the cask will have a heat load of exactly 24 kW that was used in the thermal analysis. The purpose of the test is to measure the cask performance and establish baseline data. Following loading and

temperature testing of the cask with a 24 kW loading, the licensee would be able to load fuel at lower thermal ratings without the need to provide NRC with separate temperature test data and additional analysis since the 24 kW heat loading is a bounding analysis.

However, because the cask vendor has not provided thermal analyses at lower heat loadings, the NRC believes that if a licensee's first fuel loading has a heat load less than 24 kW, the licensee should conduct both a temperature measurement and a thermal analysis. The purpose of conducting both the analysis and the measurement is to measure system performance and to establish baseline data for the expected inlet and outlet temperature difference. The Certificate of Compliance has been revised to this effect and the word "approximately" has been deleted. With respect to the issue of artificial thermal loads, the NRC will accept alternate heat loads other than spent fuel and the Certificate of Compliance has been revised accordingly. A licensee could use such an artificial heat source to test an initial cask at a bounding heat load of 24 kW prior to loading fuel.

29. Comment. One commenter noted that Page 4-1 of the SER for the VSC-24 cask states that the applicant will remove any cask from service which has inlets and outlets blocked. It should say "or" instead of "and."

Response. The statement refers to a proposal made by the applicant and is correct as quoted on page 4-1. However, the NRC did not accept this proposal because the applicant did not provide acceptable evidence that the cask will be adequately cooled in the event of a full blockage of either all inlets or outlets. Sections 1.3.1 and 1.3.4 of the Certificate of Compliance require that a VCC be removed from service whenever either all inlets or all outlets are found to have blockage for 24 hours and the concrete temperature criterion of 350 °F has been exceeded. This conclusion is also stated on page 4-1 of the SER.

30. Comment. One commenter noted that Table 4.1-1 of the November 1991 SAR for the VSC-24 cask fails to state what the temperature difference would be if all inlets were blocked over a long-term.

Response. The commenter is correct. However, a temperature criterion of 350 °F has been established for the concrete cask. Calculations indicate that a temperature of 350 °F could be reached after 30 hours if either all inlets or all outlets are blocked. If this situation is identified, the licensee must demonstrate that accident temperature criteria have not been exceeded or is required to take the cask out of service.

NRC notes that reaching 350 °F is not an unsafe condition with respect to the containment integrity of the MSB or the stored fuel. Rather it is a criterion for deciding whether to take the VCC out of service. This action is highly conservative, since only the onset of very slow degradation occurs if the concrete temperature reaches 350 °F. As discussed below, in response to Comment Number 31, a conservative adiabatic heatup analysis determined that it would take 7 days to reach unacceptable fuel clad temperatures. The NRC considers that within this time frame, the licensee's enhanced daily surveillance program, which must include a component that verifies the thermal performance of the cask, would identify the blockage and allow sufficient time for necessary corrective actions to be taken.

31. Comment. One commenter indicated that the safety evaluation for the tipover of the VCC only considered the structural aspects of the accident and ignored the thermal consequences. The issue raised was that the VSC-24 cask uniquely requires a vertical orientation to adequately remove heat and that heat removal in the horizontal configuration is degraded even if all vents are unblocked which should not be assumed.

Response. Thermal consequences of a VSC-24 cask tipover were considered and are bounded by the adiabatic heat-up analysis performed for the cask. Adiabatic heat-up is not affected by orientation, either horizontal or vertical. The adiabatic analysis determined that it would take approximately seven days to reach unacceptable fuel clad temperatures. The NRC considers that within this timeframe the licensee would take necessary corrective actions to return the cask to an upright position.

32. Comment. One commenter stated that an analysis based on Diffusion Controlled Cavity Growth (DCCG) has been the only method accepted by the NRC to determine the maximum allowable fuel cladding temperature. The commenter further stated that it was not apparent that an analysis based on DCCG had been performed in evaluating maximum cladding temperature for the VSC-24 cask.

Response. The NRC agrees that DCCG is the only current method acceptable to the NRC to determine maximum allowable fuel clad temperature. The VSC-24 cask was evaluated by this method. See Section 5.3.3 of the SER.

E. A number of commenters expressed concern about emergency planning and response to contingencies.

33. Comment. Some commenters expressed concern that no evacuation

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plan was required. They also stated that there is a lack of contingency planning for catastrophic events. They noted these events could include but would not be limited to:

- a. Direct or indirect lightning strikes on the casks;
- b. Plane crash into the casks;
- c. Sabotage;
- d. Earthquakes;
- e. Fire; and
- f. Emergency planning for cask malfunctions.

A commenter wanted the utility to notify either state or local government before loading casks to make sure local services were aware and would know how to respond if necessary under the emergency plan.

Response. The Code of Federal Regulation, 10 CFR parts 50 and 72 requires that nuclear plant structures, systems and components important to safety shall be designed and appropriately protected against dynamic effects, including the effects of tornado-driven missiles, that may result from events and conditions outside the nuclear power unit. This includes the effects of possible airplane crashes.

The licensee's site evaluation for a nuclear plant also considers the effect of nearby transportation and military activities. A licensee proposing to use the VSC-24 cask is required to evaluate and verify that the SER for the facility encompasses the design basis analysis performed for the VSC-24 or any certified cask. Generally, a cask's inherent design will withstand tornado missiles and other design loads and thus, also provides protection against the collision forces imposed by light general aviation aircraft (i.e. 1500-2000 pounds) which constitute the majority of aircraft in operation today. NUREG-0800, Section 3.5.1.6 "Standard Review Plan for Light Water Reactors", contains methods and acceptance criteria for determining if the probability of an accident involving larger aircraft (both military and civilian) exceeds the acceptable criterion. It is incumbent upon the licensee to determine whether or not the reactor site parameters are enveloped by the cask design basis as required by 10 CFR 72.212(b)(3). This would include an evaluation demonstrating that the requirements of § 72.106 have been met.

NRC reviewed potential issues related to possible radiological sabotage of storage casks at reactor site independent spent fuel storage installations (ISFSIs) in the 1990 rulemaking that added subparts K and L to 10 CFR part 72 (55 FR 29181). NRC regulations in 10 CFR part 72 establish physical protection

and security requirements for an ISFSI located within the owner controlled area of a licensed power reactor site. Section 72.212(b)(5) requires that the spent fuel in the ISFSI be protected against the design basis threat for radiological sabotage using provisions and requirements comparable to those applicable for other spent fuel at the associated reactor subject to certain additional conditions and exceptions described in 10 CFR 72.212. Each utility licensed to have an ISFSI at its reactor site is required to develop security plans and install a security system that provides high assurance against unauthorized activities which could constitute an unreasonable risk to the public health and safety. The security systems at an ISFSI and its associated reactor are similar in design features to ensure the detection and assessment of unauthorized activities. All alarm annunciations at the ISFSI are monitored by the security alarm stations at the reactor site. Response to intrusion is required. Each ISFSI is periodically inspected by NRC and annually audited by the licensee to ensure that the security systems are operating within their design limits. The validity of the threat is continually reviewed, with a formal evaluation every six months by the NRC.

An adequate evacuation plan exists for the use of certified casks because of the fact that the existing reactor emergency plan covers the entire site. In addition, contingency planning for the events described above exists because these events are covered within the emergency plans of the reactor facilities which will use the cask. In accordance with 10 CFR 72.212(b), the reactor licensee must review the emergency plan to ensure it provides adequate protection. The licensee's emergency plan provides for responsive action if an event has happened which has the possibility of creating an emergency or after an actual emergency has occurred. Through communications between the utility and governments, the contents of the emergency plan and the actions to be executed by each entity for various situations are understood. In addition, the utility is required to conduct a periodic emergency exercise involving the utility and government agency staff.

34. Comment. One commenter stated that there was no contingency for accidents except to reload the spent fuel back into the cooling pool which may not be possible due to lack of pool storage space or impact on the spent fuel due to the accident.

Response. Because of the design features, as well as the procedures and requirements discussed elsewhere in

this response and the associated safety analysis, the likelihood of an accident occurring which will require removal of the spent fuel from the cask is very small. However, even if such an unlikely accident occurs, the cask design is required to have capability to permit retrieval. (10 CFR 72.122(f)). NRC does not require a licensee to maintain a reserve capability in the spent fuel pool. Many licensees may do so, however, and they would, therefore, have the option of returning the fuel to the pool in the unlikely event of an accident requiring removal of fuel from the cask. In addition, licensees will have other options available to cover this unlikely contingency including temporary storage in a spare storage cask or use of an existing certified transportation cask. Licensees would have to consider these, and other available options, in the unlikely event an accident occurs requiring removal of the fuel.

F. Other comments which do not specifically fit those categories above follow below. These comments deal with a broad range of other technical and procedural issues.

35. Comment. There are outstanding safety issues that the NRC expects to resolve in the first test.

Response. The NRC SER addresses all significant safety issues, and there are no outstanding safety issues about the VSC-24 cask that remain unresolved. Accordingly, the first test does not involve any safety issue. Its purpose, rather, is to benchmark the heat removal capability of the VSC-24 cask.

36. Comment. One commenter asked that a requirement to submit a report to the NRC within 15 days of the test and evaluation of the first cask and prior to construction of the second cask be added to the VSC-24 cask Certificate of Compliance. Also the report and subsequent NRC review should be placed in NRC's Public Document Room.

Response. A letter report summarizing the results of the thermal test and evaluation of the first cask placed in service will be submitted to the NRC and placed in the Public Document Room. The licensee may, at their own financial risk, fabricate additional casks prior to using the first cask. If the first cask does not perform as specified, the NRC would prevent use of the other casks or modify conditions on how they could be used.

37. Comment. It is unacceptable from a public health and safety standpoint to conduct the first full scale test of a VSC-24 cask at a reactor site because it places the power plant workers, the public, and the environment at risk. Two

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commenters stated that the VSC-24 had not been tested to the full range of climatic conditions.

Response. Although the volume of data that is available to support certification of the VSC-24 cask does not include results of full scale tests, the available data is more than sufficient to show that the use of the VSC-24 cask by a licensee will not place power plant workers, the public, or the environment at any undue risk. Also the conditions of use for the VSC-24 cask in the Certificate of Compliance ensure adequate protection of the workers, the public, and the environment. Further, the VSC-24 cask has been designed and will be fabricated to well established criteria of the ASME B&PV and ACI codes. In addition, it uses construction materials which have well known and documented properties to provide the necessary structural strength and radiation shielding to meet regulatory requirements. While the NRC has not relied on testing of the VSC-17 cask (a smaller version of the VSC-24 cask design) for approval of the VSC-24 cask, the VSC-17 cask has been tested by DOE at its Idaho National Engineering Laboratory. The report "Performance Testing and Analysis of the VSC-17 Ventilated Concrete Cask," EPRI TR-100305, dated May 1992, concluded that the VSC-17 cask can be safely used at reactor sites. While the VSC-24 cask approval does not rely on the VSC-17 cask, the designs are similar and many parallels in design and function can be drawn. DOE testing of the VSC-17 demonstrates that ventilated storage cask technology can provide safe storage of spent fuel. Thus, in view of the above, although the commenter's observation that the VSC-24 had not been fully tested under climatic conditions is technically correct, the cask has been designed for ambient temperature extremes from -40 °F to +100 °F and meets the ASME and ACI requirements.

38. **Comment.** One commenter noted that Consumers Power does not have a plan to remove spent fuel stored under general license from the reactor site as required by 10 CFR 72.218.

Response. The licensee is not required to have a plan to remove spent fuel stored on site under the general license until an application to terminate the reactor operating license is submitted to the NRC. This requirement is found in 10 CFR 72.218(b) and 10 CFR 50.54(bb).

39. **Comment.** One commenter noted that the NRC does not specifically require inspections against 10 CFR 72.236(j)-(m). Questions were raised regarding quality assurance problems encountered during the inspection of

systems currently in operation, and during the construction of the first five casks, that are expected to be placed in service. Another question was raised pointing out that the vendor did not use weld inspectors qualified/certified to American Weld Society D.1.1.

Response. The NRC ensures compliance with 10 CFR 72.236 (j) and (k) through inspections, and ensures compliance with 10 CFR 72.236 (l) and (m) through the cask approval process. This process will identify different areas that may need correction, but that is the purpose of an inspection program. If a violation of the requirements is detected, the NRC can impose penalties, or even stop work. The NRC takes note of the fact that problems noted by the commenters were identified as a result of NRC's inspection program during the construction of specific casks. This experience reemphasizes the need for close and continuing quality surveillance under vendor and user QA programs during all VSC-24 and other cask construction activities. The NRC will continue to conduct the inspections of construction activities in accordance with NRC's Inspection Procedures in conjunction with vendor's quality assurance (QA) program, specifications, drawings, etc. to ensure quality work. As to the specific point of the qualification of welds and inspectors, the NRC notes that the welds referenced were not structural welds and, as allowed by the vendor's fabrication specifications, do not have to be qualified to the same extent as a structural weld.

40. **Comment.** Concern was expressed that the measurement of actual effectiveness of a technology in delivering stated requirements must be demonstrated empirically, and that the NRC has not demonstrated the goal of this technology, defined acceptance criteria, or specified how compliance is demonstrated. Some commenters also expressed concern that the review of the concrete cask was not done at the same level as that performed for metal casks and that no independent computer analyses were performed for the design event review. Some commenters noted that the review requires more than limited computer models.

Response. For the issue of acceptance criteria, the NRC has established specific requirements in 10 CFR part 72 that must be met in order to obtain a Certificate of Compliance for a cask. The details of the review and bases for the NRC concluding that the cask meets the requirements of 10 CFR part 72 are provided in the SER. The goal of dry cask storage technology is to store spent fuel safely. That goal, and the

effectiveness of the technology, previously has been demonstrated empirically and experimentally. Different cask designs may require different types of analysis to demonstrate their safety, and therefore different review methods may be appropriate to reach that conclusion. In each case the level of review performed is that needed to provide assurance of adequate protection of the public health and safety.

41. **Comment.** Some commenters claimed that part 72, subpart K was originally intended to apply to metal casks only. Concrete cask systems were not addressed in the original rulemaking.

Response. As discussed below, both the language and history of subpart K show that it applies to any NRC-approved dry cask storage system including concrete cask systems, and commenters are therefore mistaken in their view that it was intended for metal casks only.

Subpart K applies "to casks approved under the provisions of this part" which includes casks approved by NRC under 10 CFR part 72, subpart L. Subpart L contains NRC's approval conditions "for NRC spent fuel storage cask designs" which would include concrete casks. None of the approval conditions in subpart L requires that the cask must use a metal cask design.

Additionally, there is information on concrete storage technologies in the subpart K rulemaking record that would not support limiting it only to metal casks. Specifically, the Commission's notice of proposed rulemaking (NPRM) for subpart K referenced the Canadians' use of "concrete casks called silos" in describing "the knowledge and experience of dry spent fuel storage in concrete casks." 54 FR 19379-80 (May 5, 1989). The proposed rule also referenced DOE's demonstration of dry storage in sealed storage casks (SSC) which it described as "an above-ground, steel-lined, reinforced concrete cylinder or cask." Id. Further, it cited experience gained from spent fuel storage "in stainless steel canisters stored inside concrete modules at the H.B. Robinson 2 site * * *." Id. If the Commission had intended to limit subpart K to metal casks, it would not have included data from other dry storage technologies in the record supporting its action.

Although the Commission has not previously approved concrete storage systems (or casks) under subpart L, it expressly noted such systems might be approved (and thereby included in subpart K) in the future. In particular, the Commission gave the following explanation for not approving certain

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concrete module designs in the final subpart K rule:

A major reason that these spent fuel storage systems (e.g., NUHOMS; Modular Vault Dry Store), which are being considered by the Commission for use under a general license, are not being approved at this time is that they have components that are dependent on site-specific parameters and, thus, require site-specific approvals. 55 FR 29181 (July 18, 1990).

Moreover, the NPRM included the statement that "(t)he Commission has evaluated and approved, in specific licenses issued under 10 CFR part 72, other types of dry storage modules (and t)hese methods may be approved in the future for use under a general license." 54 FR 19382. It also noted that "(s)torage casks certified in the future will be routinely added to the listing in § 72.214 through rulemaking procedures." 54 FR 19380.

These statements collectively show the Commission specifically envisioned the possibility of future rulemaking (i.e., the procedure NRC is now using) to add concrete storage systems to the list of approved spent fuel storage casks in subpart K. Consequently, concrete storage systems can be "casks approved under the provisions of this part" for purposes of part 72, subpart K if, for example, they are not dependent on site-specific parameters and therefore do not require site-specific approvals and if they conform to the approval conditions of subpart L.

Finally, it is noteworthy that the Commission adopted subparts K and L for the express purpose of implementing certain interim storage provisions of the Nuclear Waste Policy Act of 1982 that, significantly, are not limited to metal casks. 54 FR 19379 (May 5, 1989). In particular, the Act authorized the Commission to approve by rule "one or more (storage) technologies" for use at reactor sites. (Sec. 218(a) (42 U.S.C. 10198(a)). The Act also directed the Commission to establish procedures for the licensing of "any technology" approved by the Commission under section 218. (Sec. 133 (42 U.S.C. § 10153)). Therefore, because the Act's provisions are not limited only to metal storage cask designs, it would be inconsistent with the Commission's purpose to limit the application of subparts K and L to such designs.

42. *Comment.* One commenter requested the proceeding be stopped until the NRC revises all regulatory requirements pertaining to the storage of high-level waste and spent fuel to require testing procedures which include testing to destruction.

Response. The NRC does not require testing to destruction or other tests if we

have confidence in the analyses which are done or if the design relies on nationally recognized codes and standards. Testing to destruction is an option that can be used to confirm design adequacy. However, destructive tests of an entire cask are not necessary to evaluate a design when other non-destructive tests or destructive testing of the components will provide the necessary information to evaluate a design.

43. *Comment.* Some commenters expressed concerns that fuel handling could be under less than ideal conditions and that storage could be under harsh environmental conditions. Sites where the VSC-24 cask is proposed for use would experience low winter temperatures, freeze-thaw cycles, high humidity, and marine conditions. Concern was also expressed that harsh environmental conditions and damage to the MSB protective coating will degrade the containers as a result of corrosion, embrittlement, cracks, fatigue and other aging effects which would affect the ability of the cask to survive over extended periods.

Response. Handling of fuel and loading of the cask is performed under well controlled conditions in the reactor's fuel handling building using written procedures developed in accordance with the reactor operating license. The VSC-24 system has been evaluated for the possible effects of harsh environmental conditions and the MSB has been evaluated for the possible effects of corrosion due to humid and marine environmental conditions. As a result of the corrosion analysis of the MSB, the NRC found the design acceptable with the consideration of localized corrosion mechanisms (i.e., pitting, stress corrosion cracking, crevice corrosion and galvanic corrosion) as well as general corrosion. Localized corrosive attack on the MSB surfaces is minimized by choice of materials and design features such as the ceramic tiles between the VCC liner and the bottom surface of the MSB. Furthermore, the NRC allows no credit for the attributes of the paint.

Aging issues attributed to fatigue for the MSB were evaluated according to the ASME B&PV Code, Section III, and it met acceptable standards.

Temperature extremes, such as freeze-thaw cycles which exist in the Great Lakes region, were considered in the evaluation of the VSC-24 cask.

According to the conditions for cask use, the user of the VSC-24 system will perform site-specific analyses to verify that the temperature conditions assumed in the analysis bound the conditions existing at the site.

The possibility of MTC and MSB cracks was addressed as a part of ferritic material considerations. Based on guidance provided in ANSI N14.6 and NUREG CR-1815 the NRC established test and operating limits for the MTC and the MSB to preclude the possibility of brittle fracture.

Finally, the VCC is designed and fabricated to American Concrete Institute Code requirements which consider durability under extreme conditions for extended periods. The cask is also subject to annual visual surface inspections for chipping, spalling, or other surface defects. Any surface defects found can be easily corrected. The fluence of the neutron flux within the spent fuel is five orders of magnitude less than the fluence encountered within an operating reactor, and therefore embrittlement of the MSB is not of concern.

44. *Comment.* A commenter asked how the NRC will correct the problem when something goes wrong with the VSC-24 cask. In the event of a tipover or drop of a loaded VCC, the commenter believes the licensee should be required to report the incident to the NRC within 4 hours and the NRC, rather than the licensee, should determine whether the MSB and/or the VCC should be reloaded for spent fuel storage.

Response. The licensee is responsible for correcting problems when they occur. The NRC is responsible for ensuring that the licensee takes appropriate corrective action. These rules reflect existing regulatory practice and procedure. The regulations and Certificate of Compliance identify specific events and conditions where the licensee would have to notify the NRC.

In accordance with 10 CFR 72.216(a) the licensee is required to report cases involving any defect as a result of a tipover or a drop to the NRC within 4 hours. The licensee would also have to inspect and evaluate the MSB after any tipover or drop of 18 inches or higher. Based on that evaluation, the licensee, not the NRC, would be responsible for determining continued use of that cask. NRC's responsibility is to monitor and oversee the licensee's activities. NRC has, however, the authority to order the licensee to cease use of a cask, if that were determined to be necessary.

45. *Comment.* One commenter stated that the double seal welds at the top of the MSB do not comply with the ASME Code, Section III, Subsection NC.

Response. The double seal welds at the top of the MSB meet all of the ASME requirements except the volumetric inspection requirement. This inspection is not possible due to the presence of

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the radioactive fuel loaded into the MSB. However, an additional margin of safety is provided because: (1) The welded joint is a double weld; (2) the weld joint has been analyzed according to ASME Section III criteria for all load conditions including accidental drop; (3) the pressure inside the canister during normal storage operations is approximately atmospheric, resulting in very low stress intensities; and (4) the confinement integrity is established by ASME code test procedures, which include dye penetrant testing of the root and cover welds of both the inner and outer welds. In addition, the NRC is requiring testing for helium leaks prior to the placing of the MSB in storage.

46. *Comment.* A number of commenters questioned the lack of transportability of casks and the apparent noncompliance with the requirement of 10 CFR 72.236(m). Several commenters expressed concern that the VSC-24 cask is not compatible with transportation requirements. Several commenters questioned how the spent fuel will be transported to a Federal Repository and what will be the additional handling cost.

Response. These casks are currently approved for storage of spent fuel, not off-site transportation. Therefore, there is no need for the VSC-24 cask to be compatible with transportation requirements. These casks are only moved between the fuel handling building and the storage pad at the site where the fuel will be stored. Although 10 CFR 72.236(m) states, "To the extent practicable in the design of storage casks, consideration should be given to compatibility with removal of the stored spent fuel from a reactor site, transportation, and ultimate disposition by the Department of Energy," there is no requirement that the storage cask itself be transportable off site. If the cask vendor wants to have its cask used for the transportation of spent fuel, it would have to obtain a transportation Certificate of Compliance issued by the NRC under 10 CFR part 71.

The mechanism for transporting the spent fuel from a reactor site to a Federal Repository is unknown at this time. However, it could be by truck, rail, barge, or some combination. Also, the handling costs are unknown since DOE compatibility requirements are not known and regulatory requirements at the time of transfer could be different.

47. *Comment.* One commenter pointed out the NRC indicates that the analyses presented in the SAR are "based on non-consolidated, zircaloy-clad fuel with no cladding failures." Please clarify whether there exists an inconsistency between "no cladding

failures" and the language which the NRC uses in Table 1-1, Characteristics of Spent Fuel to be Stored in the VSC-24 System, referring to Fuel Cladding as: "Zircaloy clad fuel with no known or suspected gross cladding failures."

Response. The NRC agrees that there is an inconsistency. Acceptability is based on zircaloy clad fuel with no known or suspected gross cladding failures. Section 1.2.1 of the Certificate of Compliance has been revised to "specify no known or suspected gross cladding failures." The intent of this specification is to rely on the cladding to safely confine the UO_2 fuel material within the rods to preclude operational safety problems during its removal from storage. Fuel cladding with pin hole leaks is still capable of confining the fuel and therefore is acceptable for storage. In addition the inert atmosphere and fuel clad initial temperatures provide assurance that the cladding will be protected during storage against degradation that leads to gross rupture.

48. *Comment.* Commenters stated that there is no evidence that PSN considered the effects of worst case tolerance combinations in the structural analysis.

Response. There are several generic areas where improper tolerance combinations could jeopardize the structural integrity of a design. These areas are:

(1) Over-tolerance of weight which could result in unallowable stress levels for some components;

(2) Improper tolerances for dynamic parts such as in machinery which could result in interference and failure;

(3) Improper tolerance for fuel positioning in the basket;

(4) Improper tolerances of parts of an assembly which could lead to induced stresses from an interference fit or the converse situation, i.e., loose tolerances which could lead to an ill-defined load path; and

(5) Improper tolerances which might cause a heat conduction path to exist or not exist.

The NRC has reviewed and verified that tolerances specified in the application would prohibit a weight which is above the load used in the calculation package. The NRC also reviewed specified dimensioning, which, when followed as required, will prohibit interference and failure of dynamic parts such as machinery or fuel positioning in the basket. The NRC reviewed the vendor's calculations to assure that the loads which were analyzed and heat conduction paths account for the range of tolerances. For these reasons, the NRC has concluded that tolerance combinations are

adequately addressed for the vendor's structural and thermal analysis.

49. *Comment.* A commenter indicated that the VSC-24 was exempted from established cladding temperature criteria for short term normal condition events, in which the maximum fuel cladding temperature limit is exceeded by as much as 170 °F.

Response. The VSC-24 has not been exempted from a short term temperature limit for fuel cladding. In comparing the short-term and long-term thermal hydraulic evaluation shown in Table 4.1-1 of the SAR, the short-term temperature will exceed the long-term temperature by as much as 170 °F. This higher temperature, however, is acceptable during the short-term while the fuel is dried prior to filling the MSB with an inert gas (helium), weld sealing the MSB, and final placement of the MSB in the cask for interim storage. The NRC conservatively assumed that air was present during the drain-down and dry-out periods and calculated the oxidation rate. The maximum length of fuel oxidation for defective fuel was determined. The cladding strain was estimated to be less than 1 percent. Therefore no defect extension or fuel powdering is anticipated. The short term increased temperature is desirable to ensure removal of moisture. Following dry-out and helium introduction, the temperature will drop below the long term limit.

50. *Comment.* Some of the commenters indicated that the SER for the VSC-24 cask allows k_{eff} of 0.98 and that this deviates from the normally accepted limit of 0.95 specified in NRC Regulatory Guide 1.13, Proposed Revision 2, "Spent Fuel Storage Facility Design Basis." The commenter indicated that NRC should allow other vendors to modify their cask to k_{eff} of 0.98. One commenter expressed concern that the benchmark experiments that were cited in the analysis dated to the 1970's and because of their age were considered inappropriate for use, and commented that there was a difference in the geometry between the benchmark calculations and the VSC-24.

Response. The k_{eff} of 0.95 is guidance and is thus, not a requirement. As such, a licensee has flexibility and may propose an alternative limit. Based upon NRC review, NRC accepted the licensee's proposed use of a k_{eff} of 0.98 for the accident case of misloading the MSB with all fresh fuel of maximum enrichment and optimum moderation conditions. This accident condition borders on the incredible since it requires a mutually exclusive condition: that is, 24 unirradiated fuel assemblies that have heat generation rates sufficient

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to produce enough boiling for optimum moderation. Therefore, NRC would accept a k_{eff} of 0.98 for any cask generically for this accident case, but a k_{eff} of 0.95 would apply otherwise. The conditions of nuclear criticality, and the experiments that provide that information can be and have been measured with a high degree of accuracy, since the 1940's. The age of the data is not significant. It is desirable that the benchmark experiments represent the system under evaluation as closely as possible. The features or parameters that are important to this purpose are the fuel composition and enrichment, the geometry of the fuel assembly, i.e., rod diameter and pitch, cladding type, and any neutron absorbers in the vicinity of the fuel pins. These parameters must be properly considered in the processing of nuclear cross sections used in criticality analysis so that the benchmark experiments are used to determine a method bias, or systematic error that may result from the particular set of nuclear cross section data that are used, or from the methods used to process the cross section data. Once method bias is determined for the particular fuel parameters, the calculations are quite insensitive to the macroscopic geometry of the system.

Therefore, it is not necessary that the gross or macroscopic geometry of the benchmark experiments be similar to the VSC design as long as the method bias has been determined for the appropriate fuel parameters. The B&W critical experiments have been widely used for this purpose since they were performed using light water reactor fuel assemblies similar to those used in many light water reactors.

51. *Comment.* One commenter indicated that the Certificate of Compliance for the VSC-24 cask is unnecessarily restrictive in requiring that the MSB contain 2850 ppm boron solution while it is being loaded. This concentration of boron would keep k_{eff} less than 0.95 even if all 24 storage spaces in the MSB were loaded with fuel assemblies which average 4.2 weight percent (wt.%) U_{235} . Some nuclear power plants do not have 4.2 wt.% U_{235} fuel on site. Therefore, there is no possibility of fuel containing that concentration of U_{235} being loaded in a MSB. The commenter recommended that the Certificate of Compliance requirement for boron concentration in the MSB cavity water be changed to allow other concentrations to be used such that the boron concentration used would maintain k_{eff} less than 0.95 even if fuel assemblies containing the highest

wt.% U_{235} in the spent fuel pool were placed in the MSB.

Response. The NRC agrees that the boron specification in the Certificate of Compliance for the VSC-24 cask may be restrictive. The boron specification is consistent with the maximum allowable uranium enrichment (4.2 wt.%), based on the criticality analysis presented in the SAR. The Certificate of Compliance specification for boron concentration in water is a bounding condition which was chosen to limit reliance on administrative controls to determine the proper required boron concentration for each cask loading. A method like that proposed by the commenter, to determine the boron concentration required, based on the maximum initial U_{235} enrichment of fuel at each reactor site, could be considered as a future amendment to the Certificate of Compliance.

52. *Comment.* Some commenters suggested that the NRC should consider limiting the cask storage time and expressed concern that cask storage could become permanent if the DOE might not accept fuel as they are required to do. Commenters also noted that the NRC requirement that cask viability be evaluated for "at least" 20 years, does not, in itself, guarantee safety in the apparently likely event the casks remain years or decades beyond the original intended duration.

Response. By approval of the Certificate of Compliance, the NRC has limited the cask storage time to 20 years. After the 20-year period, the certificate can be renewed, with each renewal period not to exceed 20 years, upon demonstration of continued protection of the public health and safety and the environment. In the event that safe storage of spent fuel in a particular cask cannot be demonstrated beyond 20 years, an alternate means of storage will be required. Finally, DOE is required by the Nuclear Waste Policy Act of 1982 to accept spent fuel for ultimate disposal. As one commenter noted, DOE is proposing a new strategy in which Congress would authorize it to select a site in time to receive spent fuel for interim storage by 1998.

53. *Comment.* Commenters indicated that PSN made an error in calculating the dose rate at the gap between the MSB and MTC. PSN had 440 mrem/hr compared to NRC's calculated 4140 mrem/hr. Why weren't these discrepancies resolved? How would welders be protected?

Response. PSN did not make an error in their calculation. Rather, they made an error when transcribing a calculated value to an SAR table. This discrepancy is identified and resolved in the SER (pg

6-12). With respect to protection of welders, the operating procedures and radiation protection program of the licensee will include precautions so that the exposure of personnel working with the system inside the fuel handling building will be maintained within the dose limits of 10 CFR part 20.

54. *Comment.* Commenters stated that the reported dose of 130 mrem/hr for the VSC-24 cask sides is still 6 times higher than the stated limit/specification of 20 mrem/hr.

Response. The limit of 20 mrem/hr stated in section 1.2.4 of the Certificate of Compliance applies to the sides of the VCC, at the pad. The 130 mrem/hr value quoted in the comment refers to the maximum dose rate at the sides of the MTC when loaded with the MSB, inside the fuel handling building. Because the MSB has not been loaded into the VCC cask at this point, it is not subject to the 20 mrem/hr specification.

55. *Comment.* Commenters believed that PSN made several mistakes in calculating how much radiation might come off the surface of the VSC-24 cask. Because the VSC-24 cask has never been built, it is fair to say that no one has any definite idea of what the actual dose rates will be. In addition, some commenters noted that conclusions drawn from testing a prototype are of dubious import "when dealing with the effects of radiation."

Response. As stated in section 6.3 of the SER, a number of errors were discovered in the vendor's shielding analysis. An adequate explanation for these errors was offered by the vendor. However, the NRC made independent confirmatory calculations to estimate the dose levels associated with the VSC-24 system. The vendor's shielding design and expected dose rates along the surface of the VCC were determined to be acceptable based on a comparison with the independent NRC calculations. NRC agrees with the commenter that the actual dose rates from specific fuel loaded into the cask cannot be exactly determined a priori. However, dose calculations can readily predict expected dose rates for the VSC-24 cask with sufficient accuracy to assure that NRC limits will not be exceeded. In addition, these calculations tend to be conservative and tend to overestimate actual dose rates that would be experienced during actual operations. Prototype testing was not used in evaluation of the adequacy of the shield design for the VSC-24 cask. Finally, the licensee will conduct surveys to ensure compliance with regulatory requirements and the Certificate of Compliance.

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56. *Comment.* Commenters believed that PSN benchmarking of shielding codes against measured dose rates for the VSC-24 cask was grossly in error. Further, PSN did not benchmark the SKYSHINE-II calculation method. The NRC calculated direct and air-scattered dose rates, at various distances from the cask, which were many times higher than the PSN calculated dose rates.

Response. PSN's benchmarking of the ANISN and QAD computer codes for dose rate calculations was found by the NRC to be incomplete because it did not address differences in dose rates calculated by the ANISN and QAD computer codes. The NRC conducted independent confirmatory calculations to estimate the dose levels associated with the VSC-24 cask system for comparison with the vendor's calculations. Based on that comparison, the NRC concluded the design provided acceptable shielding.

Although PSN did not benchmark the SKYSHINE-II calculation method, they used that method to calculate site boundary dose rates. Based on review of their calculations and independent NRC calculations, the NRC concluded that PSN had not calculated conservative neutron and gamma dose rates at the site boundary. However, even with the NRC's more conservatively calculated site boundary dose rates, the NRC concluded that general licensees using the VSC-24 cask will meet all applicable regulatory requirements.

In addition, the NRC also requires any VSC-24 user to measure the external cask surface dose rates to ensure the cask has been properly loaded and radiation monitoring to ensure compliance with regulatory requirements.

57. *Comment.* A number of commenters requested a public hearing on this rulemaking. Approximately half of the commenters requested that a full public hearing be held at each reactor facility site prior to the use of dry cask storage at that site.

Response. Consistent with the applicable procedure, the NRC does not intend to hold formal public hearings on the VSC-24 cask rule or separate hearings at each reactor site prior to use of the dry cask technology approved by the Commission in this rulemaking. Rulemaking procedures, used by the NRC for generic approval of the VSC-24 cask, including the underlying staff technical reviews and the opportunity for public input, are more than adequate to obtain public input and assure protection of the public health, safety and the environment. Further, in this rulemaking, NRC has taken extra steps

to elicit and fully consider public comments on the VSC-24 technology.

Section 133 of the Nuclear Waste Policy Act of 1982 authorizes NRC to approve spent fuel storage technologies by rulemaking. When it adopted the generic process in 1990 for review and approval of dry cask storage technologies, the Commission stated that "casks * * * (are to) be approved by rulemaking and any safety issues that are connected with the casks are properly addressed in that rulemaking rather than in a hearing procedure." 55 FR 29181 (July 18, 1990). Rulemaking under NRC rules of practice, described in 10 CFR 2.804 and 2.805, provides full opportunity for expression of public views, but does not use formal hearings of the type requested by commenters.

In this proceeding, rulemaking clearly provided adequate avenues for members of the public to provide their views regarding NRC's proposed approval of the VSC-24 cask, including the opportunity to participate through the submission of statements, information, data, opinions and arguments. In this connection, the NRC staff prepared for public examination two separate, technical evaluations for the VSC-24 dry cask system, each time making detailed, documented findings of compliance with NRC safety, security and environmental requirements. The staff's first evaluation, prepared in March 1991, reviewed and approved the VSC-24 for reference in a site-specific application for an independent spent fuel storage installation. In May 1992, the NRC staff reviewed the VSC-24, and approved the design for purposes of initiating this rulemaking to grant a generic approval of the design. In addition, the staff conducted a third review in response to the public comments on the VSC-24 in this rulemaking, again finding compliance with NRC requirements as set forth in this notice of final rule and response to comments.

In addition to reviewing systematically and in depth the technical issues important to protecting public health, safety and the environment, the NRC has taken extra steps to obtain and fully consider public views on the VSC-24 technology, and has made every effort to respond to public concerns and questions about the VSC-24 cask's compliance with NRC safety, security and environmental requirements. The initial public comment period opened on June 26, 1992, and closed on September 9, 1992. In addition, NRC received a number of comments after the close of that period, all of which were fully considered. Subsequently, NRC extended the period

for submission of public comments until February 22, 1993. Thus, the public comment period for this rule has effectively been almost nine months. In addition, the NRC staff made every effort to consider comments received after February 22, 1993. Further, the staff proposed and participated in a public meeting near one of the nuclear plants proposing to use the VSC-24 cask (i.e., Palisades), with the Attorney General of the State of Michigan, to provide further opportunity for public input on the safety, security and environmental compliance issues in this rulemaking. NRC also participated in an earlier meeting of the Van Buren County Commission near the plant site.

Under these circumstances, formal hearings would not appreciably add to NRC's efforts to ensure adequate protection of public health, safety and the environment, and are unnecessary to NRC's full understanding and consideration of public views on the VSC-24 cask.

58. *Comment.* Commenters believed that a full democratic process is needed in this decision.

Response. Because this rulemaking was conducted pursuant to the procedures for approving dry storage casks for use under a general license, as required by Congress in the Nuclear Waste Policy Act of 1982, and pursuant to the public notice and comment procedures of the Administrative Procedures Act, the resulting final rule approving the VSC-24 cask is the product of a process prescribed by law.

59. *Comment.* One commenter stated that the gap between the MSB and the MTC is given as 0.5 inch in WEP-109.001.4 and as 1.0 inch in Figure 5-5 of WEP-109.w13. This commenter also stated that the dose rate was not clear.

Response. The difference in the referenced gap size is a consequence of changes made as a result of earlier reviews. The final design was based on the 0.5 inch gap as indicated in WEP-109.001.4. The calculation of WEP-009.0013, which uses a 1.0 inch gap, is therefore conservative for shielding calculations. Because the gamma dose is more than 30 times that due to neutrons, any small decrease in the neutron dose rate, due to a smaller gap, would not significantly change the calculated neutron and gamma dose rates used to assess occupational exposure. In addition, these calculations conservatively neglect the shielding ring which would further reduce dose rate.

60. *Comment.* Commenters expressed concern that VSC-24 casks were being built at the Palisades Nuclear Plant before approval or certification.

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Response. The NRC granted Pacific Sierra Nuclear Associates' request for an exemption to fabricate a limited number of the casks before issuance of the Certificate of Compliance under its NRC approved quality assurance program, and at its financial risk. The NRC's finding, based on the SAR for the VSC-24 cask and the NRC's SER, concluded that beginning fabrication prior to the issuance of the Certificate of Compliance would pose no undue risk to public health and safety. Use of these casks is dependent on satisfactory completion of NRC's certification process.

61. *Comment.* Some commenters requested that the NRC prepare an environmental impact statement (EIS) and update the Generic EIS for the handling and storage of spent fuel. The EIS should be submitted to the Environmental Protection Agency (EPA) and to the State of Michigan. Some commenters also requested that action on this rule be delayed until the Wisconsin Environmental Impact Statement is complete.

Response. The potential environmental impacts of utilities using the VSC-24 cask (or any of the other spent fuel casks approved by NRC (10 CFR 72.214)) have been fully considered and are documented in a published Environmental Assessment (EA) covering this rulemaking. Further, as described below, the EA indicates that use of the casks would not have significant environmental impacts. Specifically, the EA notes the 30-plus years of experience with dry storage of spent fuel, identifies the previous extensive NRC analyses and findings that the environmental impacts of dry storage are small, and succinctly describes what impacts there are, including the non-radiological impacts of cask fabrication (i.e., the impacts associated with the relatively small amounts of steel, concrete and plastic used in the casks are expected to be insignificant), the radiological impacts of cask operations (i.e., the incremental offsite doses are expected to be a small fraction of and well within the 25 mrem/yr limits in NRC regulations), the potential impacts of a possible dry cask accident (i.e., the impacts are expected to be no greater than the impacts of an accident involving the spent fuel storage basin), and the potential impacts due to possible sabotage (i.e., the offsite dose is calculated to be about one rem). All of the NRC analyses collectively yield the singular conclusion that the environmental impacts and risks are expected to be extremely small.

The absence of significant environmental impacts from dry cask

storage at a reactor site is also the conclusion of other NRC EA's for previously approved dry casks analyzed in earlier rulemakings addressing part 72, and in the Commission's Waste Confidence decisions in 1984 (August 31, 1984; 49 FR 34658) and 1989 (September 29, 1989; 54 FR 39765). In the 1984 Waste Confidence decision, the Commission concluded there was reasonable assurance spent fuel can be safely stored at reactor sites without significant environmental impacts, for at least 30 years beyond expiration of NRC reactor operating licenses. The 1989 Waste Confidence decision review reaffirmed prior Commission conclusions on the absence of significant environmental impacts.

Thus, given the Commission's specific consideration of the environmental impacts of dry storage summarized above, and given the absence of any new information casting doubt on the conclusion that such impacts are expected to be extremely small and not environmentally significant, no meaningful environmental insights are likely to be gained from further preparation of either an EIS or an updated GEIS for the dry storage methodology.

The EA covering the proposed rule, as well as the finding of no significant impact (FONSI) prepared and published for this rulemaking, fully comply with the NRC environmental regulations in 10 CFR part 51. Moreover, since the Commission's environmental regulations in part 51 implement NEPA and give proper consideration to the guidelines of CEQ, they assure that the EA and the FONSI conform to NEPA procedural requirements, and that further analyses are therefore not legally required.

In connection with the EA and FONSI, it bears emphasizing that 10 CFR part 72, subpart K already authorizes dry cask storage and already approves dry casks for use by utilities to store spent fuel at reactor sites. See 10 CFR 72.214 for a listing of information on Cask Certificate Nos. 1000 through 1003. The present rulemaking is accordingly for the limited purpose of adding one more cask to the list of casks already approved by NRC. Furthermore, the cask, to be added to the NRC list by this rulemaking will comply with all applicable NRC safety requirements.

Finally, this rulemaking applies to cask use by any power reactor licensee within the United States. Therefore, it is not dependent on any one individual State's actions including preparation of a separate EIS by any State. Further, nothing in this rulemaking would preclude any State from implementing

its environmental statutes and regulations as may otherwise be permitted by law.

62. *Comment.* Commenters believed that a cost/benefit analysis should be prepared. One commenter proposed a cost comparison formula which would estimate costs associated with dry cask storage over the next 1000 years.

Response. A regulatory analysis, which considers both benefits and impacts of adding the VSC-24 cask to the list of NRC-approved casks under 10 CFR part 72, subpart K, was prepared in support of this rulemaking action. It was included as a part of the notice of proposed rulemaking and is also included in this final rulemaking notice. This regulatory analysis reflects the limited economic scope of this rulemaking. The 1000 year cost comparison identified above assumes 1000-year interim storage at Palisades, an assumption the NRC is not proposing or adopting in this rulemaking. The NRC Waste Confidence decisions concluded there is reasonable assurance the Federal government will begin receiving spent fuel for disposal by 2025. Thus, the likelihood of 1000-year interim storage at Palisades is extremely small.

63. *Comment.* One commenter wanted letter reports to the NRC distributed to local and state government authorities and local libraries in the vicinity of facilities using the VSC-24 cask.

Response. The NRC interprets this comment as applying to letter reports required by the Certificate of Compliance. Letter reports sent to the NRC are routinely placed in the Public Document Room and Local Public Document Rooms near each facility. Local Public Document Rooms are located in public, university, and special libraries. A directory of Local Public Document Rooms is published by the NRC as NUREG BR-88. The NRC would respond to State requests for copies of such reports through NRC's State Relations Program.

64. *Comment.* Commenters indicated that operating procedures, evaluation reports, and training programs should be submitted to the NRC, state and local government authorities, and placed in local libraries near such facilities.

Response. These documents expand on generically approved procedures in the SAR, Certificate of Compliance, or in the case of the boron determination, on national standards. In accordance with the NRC requirements, licensees are not required to submit this information to the NRC or other government authorities. Rather, this information is evaluated by the licensee and is available for inspection by the

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NRC. The NRC's inspection program includes requirements to inspect these procedures.

65. *Comment.* Commenters stated that the VSC-24 is not a cask. The designer called it a cask system.

Response. The NRC considers it to be a cask. It is called a cask system because it consists of several components.

66. *Comment.* Commenters believe that there is poor management at Consumers Power Company. NRC Information Notice 91-56 says they still have a provisional license after 20 years. Consumers Power Company had serious quality control violations, below average operating capacity, and faulty construction at Midland.

Response. Although this comment is not directly related to this rulemaking, which is to provide generic approval of the VSC-24 cask design that is not dependent on site specific consideration for any one licensee, NRC notes that its Systematic Assessment of Licensee Performance (SALP) program is an integrated staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance, including Consumers Power, on the basis of this information. The most recent SALP report for Palisades, covering the period January 1, 1991 through March 31, 1992, states in summary, "Overall performance at the Palisades Nuclear Power Plant was characterized by generally steady or improving results and showed a conservative and safe operating philosophy. The overall degree of management attention and effectiveness was acceptable in all areas." Finally, the Palisades Nuclear Plant was granted a full term operating license on February 21, 1991.

The SALP report for the preceding period from September 1, 1989 through December 31, 1990 provided similar conclusions and stated, "the degree of management attention and effectiveness ranged from commendable in some areas to needing attention in others. Overall, the conduct of activities was appropriately directed to assurance of safety. Management appeared proactive and effective in demonstrating a conservative operating philosophy and establishing high standards of performance in operations, maintenance/surveillance, and security."

67. *Comment.* One commenter believed that the Certificate of Compliance should list all NRC regulations controlling the use of the VSC-24 cask for the storage of spent fuel.

Response. The Certificate of Compliance contains a general reference

to the provisions of 10 CFR part 72, which includes in subpart K, the regulations relevant to the storage of spent fuel under a general license. A specific reference to each regulation section is, therefore, unnecessary.

68. *Comment.* One commenter was favorable to the VSC-24 cask stating that it was cost-effective, made in the U.S.A., additional shielding could be added at low cost if required, the welded closure requires no monitoring, and risk is minimized by weld sealing the MSB in the reactor fuel handling building. Another commenter noted that this rulemaking is a positive action which should decrease cost and increase the safety of storing fuel. Another commenter noted the Palisades spent fuel pool is closer to Lake Michigan than the cask pad, both in terms of distance and elevation. The storage of spent fuel in a pool requires active systems for shielding, cooling and reactivity control. The VSC is passive, requiring no pumps, valves, or heat exchangers.

Response. None required.

69. *Comment.* Commenters believed that it is not acceptable to increase the number of approved cask designs. The goal must be the function of the cask itself to contain radioactivity in high concentrations and prevent it from dispersing into the biosphere as well as to shield workers and others from radiation exposure. Some suggested that alternative actions to dry cask storage should be considered.

Response. The NRC, in implementing the Nuclear Waste Policy Act of 1982, has an obligation to approve the use of casks for the storage of spent fuel, provided these casks meet applicable regulatory requirements. The NRC agrees with the commenter that these casks should contain radioactivity and protect workers, the public, and the environment. The previous rulemaking of 1990 (55 FR 29181) found that spent fuel stored in dry storage casks designed to meet the NRC regulatory requirements can contain radioactivity safely. This rulemaking adds one cask design, which meets the safety requirements previously developed. The previous responses to comments, as well as the detailed safety and environmental analyses underlying this rulemaking, and described elsewhere in this notice, all reveal that the VSC-24 cask will conform to the NRC requirements, and that its use should not pose the potential for significant environmental impacts.

The principal alternatives available to the NRC would be procedural in nature, whereby dry cask spent fuel storage could be approved under other existing

or new parts of title 10, Code of Federal Regulations. Regardless of the method selected to approve such dry cask spent fuel storage, all would have similar environmental impacts.

The NWPA directed that the NRC approve one or more technologies, that have been developed and demonstrated by DOE, for the use of spent fuel storage at the sites of civilian nuclear power reactors without, to the extent practicable, the need for additional site-specific review. The NWPA also directed that the NRC, by rulemaking, set forth procedures for licensing the technology. Regulations for accomplishing this are in place. Therefore, the no action alternative is not acceptable.

Alternative spent fuel storage technologies exist. However, at this time, the NRC considers them neither sufficiently demonstrated nor practicable for use under the general license provisions of subpart K of 10 CFR part 72 without additional site-specific reviews. If other storage technologies become more amenable to this type of action, they could be considered at a later time.

70. *Comment.* Commenters expressed concern that Pacific Nuclear, Inc., the original designer and manufacturer of the VSC-24 cask system, had ended its involvement with the cask. Reasons cited included the issue of liability, negligence issues that might surface in the future with the cask, the fact that the original designers divested themselves due to concern about the cask, and who would be responsible in the event of leakage. Commenters also questioned whether NRC had attempted to ascertain the reason for the divestiture action by Pacific Nuclear to discover if the reason related to safety of the cask, liability, or any other consequences.

Response. NRC is not aware of any safety, negligence, liability or legal concerns which prompted Pacific Nuclear, Incorporated to divest itself from the VSC-24 cask. The key individual involved in the design and development of the VSC-24 was also involved in the design and development of a new modular horizontal concrete spent fuel storage system (NUHOMS design) and formed a new company, Pacific Sierra Nuclear, for the commercial manufacture and marketing of the VSC-24 storage system. NRC focuses its efforts on assuring safety and environmental protection through reviews of applications for licenses and safety analysis reports. If a new company applies for a certificate of compliance, that new company must meet all NRC requirements as would any existing company. Through NRC's

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review and independent evaluation of the applicant's safety evaluation report and through this rulemaking action, NRC will assure that the cask meets part 72 requirements and can be used by individual nuclear power plant licensees with full assurance of protection of the public health and safety and the environment. The NRC has experienced no difficulty obtaining safety information or answers to its questions from either firm, either before, or after the divestiture.

Following the divestiture, Pacific Nuclear sent a letter containing comments on the VSC-24 design. The staff satisfactorily resolved and answered these comments with a letter; both the Pacific Nuclear and NRC letters are available in the Public Document Room. The issues contained in this exchange of letters and all other safety issues related to the design of the VSC-24 are described in the staff's SER.

71. Comment. A commenter noted that Consumers Power's comments to the NRC during this rulemaking indicate that they do not have the kind of fuel that was specified in the Certificate of Compliance for the casks at Palisades. They noted it is hard to believe that the NRC does not know what kind of fuel it is licensing the cask for, but noted that appeared to be the case. The commenter further noted that any approval given by the NRC would have to be site specific and not generic and therefore, this would require a hearing.

Response. The type of fuel that is being approved for storage in the VSC-24 cask is specified in the vendor's Safety Analysis Report as well as in the Certificate of Compliance and SER prepared by the NRC staff. NRC regulations require the vendor to specify the type of spent fuel to be stored in the cask before NRC approval, and NRC thoroughly reviewed the vendor's SAR and spent fuel specifications and made them appropriate items for public comment in this rulemaking. Commenters are therefore mistaken in saying the type of fuel to be stored in the VSC-24 cask is not known.

The kind of fuel to be loaded into and stored in the VSC-24 cask at Palisades, should Consumers Power proceed with use of the VSC-24 cask, must be acceptable fuel for storage in the cask and must meet the Certificate of Compliance specifications mentioned above for acceptable fuel which may be stored in the cask. In this regard, the Certificate of Compliance and SER have been clarified to specifically identify the fuel assembly classes acceptable for storage in the VSC-24 cask and to identify limits for physical dimensions, weight, burnup, decay power, and

radiation source term for other fuels that may be stored in the VSC-24 cask. NRC regulations prohibit Consumers Power from using the VSC-24 cask in violation of the Certificate of Compliance spent fuel specifications, and Consumers Power must perform written evaluations before using the cask that verify all Certificate of Compliance conditions are met.

As is evident from this and other responses to public comments, this rulemaking provides NRC approval for storage of spent fuel in the VSC-24 at any site in accordance with the generic conditions and specifications in the Certificate of Compliance. As noted, it does not constitute a site-specific approval of the VSC-24 cask for use by Consumers Power at the Palisades plant.

72. Comment. A number of commenters requested that the comment period be extended principally citing the fact that NRC had released a large volume of highly technical material associated with the VSC-24 cask and that the 30 day reopening of the comment period which NRC had provided was not a sufficient time for review and comment on the material. Commenters also questioned why the information was not released earlier.

Response. NRC is not granting an additional extension to the comment period. First, the new information that was released is only an increment to that previously disclosed. In addition, most of the individual pages released are computer output printouts, the results of which were previously available in various documents made available at the beginning of the public comment period. In the Federal Register Notice (January 21, 1993; 58 FR 5301) announcing the comment period extension, NRC made clear the limited, incremental character of the technical information. The information of the cask vendor being disclosed at this time added detail to the information NRC previously placed in the Public Document Room at the outset of this rulemaking. It complements and supplements the design information already disclosed, providing further detail on such matters as the vendor's design calculations (often in the form of computer runs) and specific data inputs for models used by the vendor for such calculations, as well as cask design details such as reinforcing steel sizing and shield lid thickness. The information being disclosed therefore provides additional specificity for the public about the technical information that was considered by the NRC staff in preparing the principal NRC documents underlying this rulemaking. These documents include the proposed

Certificate of Compliance for the cask and the associated NRC staff SER and related EA, which were previously placed in the NRC Public Document Room at the outset of this proposed rulemaking.

Second, the initial public comment period opened on June 26, 1992, and closed on September 9, 1992. The comment period was reopened on January 21, 1993 and ended on February 22, 1993. In addition, at the public meeting held with the Michigan Attorney General on February 23, 1993, NRC assured that comments received within five working days after that meeting would be considered. Although the comment periods have closed, NRC has considered all comments received. Thus, the public comment period for this rule has effectively been almost nine months which the NRC believes constitutes more than sufficient time for this type of rulemaking.

73. Comment. One commenter questioned the validity of neglecting gamma dose at the nozzles.

Response. The referenced Case 5 calculates the dose rate as the MSB is lowered into the VCC during transfer. Dose is estimated at the point of maximum exposure, that is, at the outlet vent and the top of the VSC. Under these circumstances, the entire distribution of radioactive material in the spent fuel assemblies contributes to the dose in a transient fashion. The assumption that the source is directly from the active fuel which is aligned with the air exhaust is conservative, since it is the highest and is sustained for a short period of time. Other MSB/VCC relative positions during transfer would yield smaller dose rates. Calculations demonstrated that the dose rate from gamma-emitting radioactive material in the nozzle is three orders of magnitude less than the dose rate from the active fuel section.

74. Comment. A commenter noted that the geometry for dose calculations was based on an earlier design and not on the latest configuration.

Response. The changes in design referred to by the commenter were slight repositionings of the inlet air duct. The reorientation involves minor changes of both the horizontal and vertical orientation of the duct but does not change the circuitous path which contributes to radiation protection. In addition, the analysis does not take credit for the 0.5-inch steel liner of the duct which would offset any small changes in dose due to reorientation of the duct. Therefore, the design changes do not result in a significant change in the radiation dose rate calculations.

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75. *Comment.* Commenters asked who would be responsible for oversight of fuel stored in casks after decommissioning of the reactor, shipment of the fuel off-site, and for decommissioning of the casks after stored fuel was shipped off-site.

Response. In accordance with 10 CFR 50.54(bb), all operating nuclear power reactor licensees are required, no later than 5 years prior to the expiration of the operating license, to provide the NRC, for review and approval, the licensee's program to manage and provide funding for the management of all irradiated fuel. NRC's review of the licensee's fuel management program will be undertaken as part of continued licensing under the provisions of part 50 and part 72 of the Commission's regulations.

With respect to decommissioning, the licensee may select a decommissioning alternative that will:

1. Allow storage of spent fuel in the spent fuel pool, in which case the licensee will be required to maintain its part 50 license;

2. Allow storage of fuel in a certified cask under the provisions of part 72 as long as the part 50 license remains in effect; or

3. Allow storage in an on-site independent spent fuel storage installation under the site-specific licensing provisions of part 72.

For any of the above alternatives, the licensee will be responsible for safe storage of spent fuel during the period of storage, for later shipment off-site for further storage or disposal and for final decommissioning of the reactor spent fuel pool, dry storage cask or ISFSI to a level permitting unrestricted release of the site and facility. The requirements for decommissioning are provided in 10 CFR part 72.30, which defines decommissioning planning, financial assurance and recordkeeping provisions.

Finding of No Significant

Environmental Impact: Availability

Under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, the Commission has determined that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. This final rule adds an additional cask to the list of approved spent fuel storage casks that power reactor licensees can use to store spent fuel at reactor sites without additional site-specific approvals by the Commission. The environmental assessment and finding of no significant

impact on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the Environmental Assessment and the Finding of No Significant Impact are available from Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3803.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0132.

Regulatory Analysis

On July 18, 1990 (55 FR 29181), the Commission issued an amendment to 10 CFR part 72, which provided for the storage of spent nuclear fuel under a general license. Any nuclear power reactor licensee can use these casks if: (1) They notify the NRC in advance; (2) the spent fuel is stored under the conditions specified in the cask's Certificate of Compliance; and (3) the other conditions of the general license are met. As part of the 1990 rulemaking, four spent fuel storage casks were approved for use at reactor sites, and were listed in 10 CFR 72.214. That rulemaking envisioned that storage casks certified in the future could be routinely added to the listing in § 72.214 through rulemaking procedures. Procedures and criteria for obtaining NRC approval of new spent fuel storage cask designs were provided in 10 CFR 72.230.

The alternative to this proposed action is to withhold certification of these new designs and to consider the granting of a site-specific license to each utility that applied for permission to use these new casks. This alternative would be more costly and time consuming because each site-specific license application would require a specific review. In addition, withholding certification would ignore the rulemaking procedures and criteria in 10 CFR part 72, subparts K and L, for the addition of new cask designs. Further, it is in conflict with the Congressional direction in sections 133 and 218 of the Nuclear Waste Policy Act of 1982 to establish procedures for the licensing of technologies for the use of spent fuel storage at the sites of civilian nuclear power reactors without, to the extent practicable, the need for

additional site reviews. Also, this alternative would exclude new vendor cask designs from the approved NRC list under subpart K without cause and would arbitrarily limit choice of cask designs available to power reactor licensees under the general license.

This final rulemaking will eliminate the above problems. Further, this action will have no adverse effect on the public health and safety.

The benefit of this final rule to nuclear power reactor licensees is to make available a greater choice of spent fuel storage cask designs which can be used under a general license. However, the newer cask designs may or may not have an advantage over the existing designs in that power reactor licensees may or may not prefer to use the newer casks. The new cask vendors with casks to be listed in § 72.214 benefit by being able to obtain NRC certificates once for a cask design which can then be used by many power reactor licensees under the general license. Vendors with cask designs already listed may be adversely impacted in that power reactor licensees may choose a newly listed design over an existing one. However, the NRC is required by its regulations and NWP requirements to establish a procedure and to consider applications to certify and list approved casks. The NRC also benefits because it will be able to certify a cask design based on one generic safety and environmental review, for use by multiple licensees. This final rulemaking has no significant identifiable impact or benefit on other government agencies.

Based on the above discussion of the benefits and impacts of the alternatives, the NRC concludes that the requirements of the final rule are commensurate with the Commission's responsibilities for protection of the public health and safety and the common defense and security. No other available alternative is believed to be as satisfactory; thus, this action is recommended.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rule, will not have a significant economic impact on a substantial number of small entities. This amendment affects only licensees owning and operating nuclear power reactors and cask vendors. The owners of nuclear power plants do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations

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issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, thus, a backfit analysis is not required for this final rule, because this amendment does not involve any provisions which would impose backfits as defined in § 50.109(a)(1).

List of Subjects in 10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 72.

58 FR 39628

Published 7/26/93

Effective 10/25/93

Decommissioning Recordkeeping and License Termination: Documentation Additions

See Part 30 Statements of Consideration

58 FR 51762

Published 10/5/93

Effective 11/4/93

10 CFR Part 72

RIN 3150 — AE15

List of Approved Spent Fuel Storage Casks; Additions

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its list of approved spent fuel storage casks to add one spent fuel storage cask (TN-24 cask) to the list of approved casks. This amendment will allow holders of power reactor operating licenses to store spent fuel in this approved cask under a general license.

EFFECTIVE DATE: November 4, 1993.

ADDRESSES: Copies of the environmental assessment and finding of no significant impact are available for inspection and/or copying for a fee at the NRC Public

Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from the individuals listed under the next heading below.

FOR FURTHER INFORMATION CONTACT: Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3803, or Mr. James F. Schneider, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2692.

SUPPLEMENTARY INFORMATION:

Background

Section 218(a) of the Nuclear Waste Policy Act of 1982 (NWPA) directs that, "(T)he Secretary [of DOE] shall establish a demonstration program in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear power reactor sites, with the objective of establishing one or more technologies that the [Nuclear Regulatory] Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission." After subsequent DOE technical evaluations and based on a full review of all available data, the Commission approved dry storage of spent nuclear fuel in a final rule published in the *Federal Register* on July 18, 1990 (55 FR 29181). The final rule established a new subpart K within 10 CFR part 72 entitled "General License for Storage of Spent Fuel at Power Reactor Sites."

Irradiated reactor fuel has been handled under dry conditions since the mid-1940's when irradiated fuel examinations began in hot cells. Light water reactor fuel has been examined dry, in hot cells since approximately 1960. Some of these fuels have been stored continuously at hot cells under dry conditions for approximately two decades. Experience with storage of spent fuel in dry casks is extensive (54 FR 19379; May 1989). Further, the United States has extensive experience in the licensing and safe operation of independent spent fuel storage installations (ISFSI's). At the beginning of 1993, the following five site specific licenses for dry cask storage had been issued: Virginia Power Surry Station, issued July 2, 1986; Carolina Power and Light (CP&L) HB Robinson Station, issued August 13, 1986; Duke Power Oconee Station, issued January 29, 1990; Public Service of Colorado Fort St.

Vrain Facility, issued November 4, 1991; and Baltimore Gas and Electric (BG&E) Calvert Cliffs station, issued November 25, 1992. All have commenced operation and loaded fuel with the exception of BG&E. Two hundred and fifty-two assemblies are in storage at Virginia Power, 56 assemblies are in storage at CP&L, 96 assemblies are in storage at Duke Power, and 1482 fuel elements are in storage at Public Service of Colorado; BG&E anticipates loading fuel later in 1993.¹

As a result of the growing use of dry storage technology, NRC has gained over 25 staff years of experience in the review and licensing of dry spent fuel storage systems. To further support the NRC technical staff, the agency draws upon the knowledge and experience of outside scientists and engineers recognized as experts within their respective fields in the performance of the independent safety analysis of the systems and components submitted by applicants for dry cask licenses or certification. Reviews of numerous applications, seeking either site-specific ISFSIs, certificates of compliance or approval of a topical report, have been conducted over the past seven years.

Section 133 of the NWPA states, in part, that "the Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under section 218(a) for use at the site of any civilian nuclear power reactor." This directive was implemented on July 18, 1990, (55 FR 29181) by the publication in the *Federal Register* of a final rule establishing new subparts K and L within 10 CFR part 72 entitled, respectively, "General License for Storage of Spent Fuel at Power Reactor Sites," and "Approval of Spent Fuel Storage Casks." As a result of that 1990 rulemaking, four casks were listed in § 72.214 of subpart K as approved by the NRC for storage of spent fuel at power reactor sites under the general license.

More recently, the NRC published a notice of proposed rulemaking in the *Federal Register* on June 26, 1992 (57 FR 28645) which would have amended 10 CFR 72.214 to include two additional spent fuel storage casks (i.e., the Transnuclear, Inc., TN-24 cask and the Pacific Sierra Nuclear Associates, VSC-24 cask) on the list of approved spent fuel storage casks that power reactor licensees may use under the provisions of a general license issued by NRC in 10 CFR part 72, subpart K.

¹ EIA Service Report SR/CNEAF/92-01 Spent Fuel Discharges from U.S. Reactors 1990, March 1992.

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Subsequent to the expiration of the 75-day public comment period on September 9, 1992, NRC took steps to implement the provision of § 2.790(c) of its regulations (41 FR 11808; March 22, 1976) which requires that "information submitted in a rulemaking proceeding which subsequently forms the basis for the final rule will not be withheld from public disclosure by the Commission." The NRC bifurcated the rulemaking proceeding into two separate rulemakings for the TN-24 and VSC-24 casks, respectively. Accordingly, on January 21, 1993, additional information relating to the VSC-24 cask, which was previously categorized as vendor proprietary information, was placed in the NRC's Public Document Room (PDR) in Washington, DC, and all NRC Local Public Document Rooms. In addition, the comment period for the June 26, 1992, proposed rule was reopened to provide opportunity for public comment on the additional information relating to the VSC-24 cask (January 21, 1993; 58 FR 5301). This comment period expired on February 22, 1993, and the NRC published a notice of final rulemaking in the Federal Register on April 7, 1993 (58 FR 17948) which added the VSC-24 cask to the list of approved spent fuel storage casks.

On April 16, 1993, additional information relating to the TN-24 cask, which was previously categorized as vendor proprietary information, was placed in the NRC PDR in Washington, DC, and all NRC Local Public Document Rooms. In addition, the comment period for the June 26, 1992, proposed rule was reopened for public comment on the additional information relating to the TN-24 cask (April 16, 1993; 58 FR 19786). The reopened comment period expired on May 17, 1993. This notice of final rulemaking deals exclusively with the TN-24 cask. It addresses the general comments on dry cask storage, as they relate to the proposed addition of the TN-24, and the specific comments on the TN-24 cask. This notice does not address the VSC-24 cask.

Transnuclear Inc. submitted to the NRC, a revised Topical Safety Analysis Report (TSAR) entitled "TN-24 Dry Storage Cask Topical Report" dated December 11, 1989. On July 5, 1989, the NRC issued a Safety Evaluation Report (SER) approving the TSAR. The NRC conducted additional evaluations and issued a draft Certificate of Compliance dated April 1992, in support of the notice of proposed rulemaking published in the Federal Register on June 26, 1992.

The paramount objective of 10 CFR part 72 is to protect the public health

and safety by providing for the safe confinement of the fuel and preventing the degradation of the fuel cladding. The review criteria used by the NRC for review and approval of dry cask storage under 10 CFR part 72 consider the following factors: Siting, design, quality assurance, emergency planning, training, and physical protection of the fuel. Included in the review of a specific system, either for a certificate of compliance or a site specific license, are the following phenomena: Earthquakes, high winds, tornados, tornado driven missiles, lightning, and floods. In addition, applicants must demonstrate to NRC's satisfaction that their proposed dry cask system will resist man-made events such as explosions, fire, and drop or tipover accidents.²

Based on further staff review and analysis of public comments, both the SER and Certificate of Compliance for TN-24 were modified. The TN-24 cask, when used in accordance with the conditions specified in its Certificate of Compliance meets the requirements of 10 CFR part 72. Thus, use of the TN-24 cask, as approved by the NRC, will provide adequate protection of the public health and safety and the environment. With this rulemaking, NRC is approving the use of the TN-24 cask under a general license by the holders of power reactor operating licenses under 10 CFR part 50. Simultaneously, NRC is issuing a final Certificate of Compliance. A copy of the Certificate of Compliance is available for public inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Public Responses

In response to the June 26, 1992 and April 16, 1993 Federal Register Notices, 250 comments were received from individuals, public interest groups, environmental groups, associations, industry representatives, Congressional Representatives and States. Although a number of the comments were received after the respective September 9, 1992 and May 17, 1993 comment closure dates for the two notices, NRC has considered all comments received including those received after the comment closure dates. A number of comments that addressed the VSC-24 cask exclusively, were fully considered by NRC in the VSC-24 proceeding (58 FR 17948) and accordingly, are not addressed in this notice on the TN-24 cask.

² The design bases for these events and accidents are contained within 10 CFR part 72.

A number of comments, which responded to the proposed addition of the TN-24 cask, related to disposal of high-level waste and the use of dry cask storage technology in general. Examples of these comments include:

- The Federal Government's failure to resolve questions about the permanent storage of nuclear wastes leaves both the plant and public with limited options: Additional storage in pools, additional storage in dry casks or plant shutdown. The Federal Government has an obligation to resolve the issue of permanent or interim storage. It would be difficult to overstate the need for the dispatch in doing so, as hundreds of American communities will eventually face this problem.
- Ten years ago, there was an erroneous assumption that the search for and construction of a final resting place for high-level waste would be much swifter than it has been. A "demonstration" program required by law was supposed to have been for temporary storage. Because of the societal and technical obstacles which radioactive waste disposal presents, even a temporary "demonstration" program is likely to have much longer-term implications. Temporary dry cask storage should not become de facto permanent disposal.

These comments deal with broad policy and program issues relating to the storage and disposal of high-level radioactive waste including the Department of Energy's repository program. However, although comments do not directly deal with the TN-24 cask, commenters will find a summary of relevant information on many of these broad issues in the response to comments presented in response to comment numbers 11 and 18 in the following analysis of comments.

Many of the comment letters addressing the proposed addition of the TN-24 cask contained comments that were similar in nature. These comments have been grouped as appropriate and addressed as single issues. In this notice on the TN-24 cask, the NRC has identified and responded to 19 separate issues that include the significant points raised by each commenter.

In addition to or in lieu of comments on the TN-24 cask, many commenters discussed topics that were not the subject of this rulemaking and thus were not specifically addressed by the NRC as a part of this final rulemaking action. These comments expressed opposition to the use of dry cask storage and included suggestions such as the following:

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(1) Nuclear plants generating radioactive waste should be shut down;
(2) The production of radioactive waste should be stopped when the existing spent fuel pool (and off-load-reactor capacity) is full;

(3) A formal hearing should be required at each site using dry storage casks;

(4) The use of nuclear power should be stopped and existing sites cleaned up;

(5) A research and development program should be conducted on productive uses of spent fuel and on alternative energy sources.

Finally, many commenters expressed concern over the ability of dry cask storage designs, presumably including the TN-24 cask, to safely store spent fuel. The following responses to these comments reflect a small but important portion of NRC's review of health, safety, and environmental aspects of the TN-24 cask, to ensure that the cask is designed to provide protection of the public health and safety and environment under both normal conditions and severe, unlikely, but credible accident conditions. Dry cask storage systems are massive devices, designed and analyzed to provide shielding from direct exposure to radiation, confine the spent fuel in a safe storage condition, and prevent releases of radiation to the environment. They are designed to perform these tasks relying on passive heat removal and confinement systems without moving parts and with minimal reliance on human intervention to safely fulfill their function for the term of storage. The designs include margins of safety under both normal and accident conditions to provide additional assurance of protection for the public health and safety, the common defense and security and the environment.

Analyses of Public Comments

1. *Comment.* One commenter stated that bolted closures with metal O-rings have shown poor operating characteristics (i.e. leaky) at Surry and in Idaho. Double seal welds at H.B. Robinson and Oconee have shown good operating characteristics. The commenter suggested that all closures should be double seal welds.

Response. Several casks with metallic O-rings have been in operation for at least seven years. Licensees are required to file formal reports if problems with O-rings occur. The NRC has not received any reports concerning O-ring problems. Similarly, there were no reports of problems with metallic O-rings during testing at Idaho National Engineering Laboratory (INEL).

However, the NRC discussed this issue with personnel at Virginia Power who are knowledgeable of the cask leak tests at Surry and personnel who worked on tests of the TN-24 cask at INEL. These individuals said that they did not have any problems with metallic O-rings leaking on any of the casks that they loaded.

The metallic O-ring seals may not necessarily last the 20-year term of the Certificate of Compliance. That is why double seals are used with a higher pressure between the O-rings with pressure monitoring equipment to quickly detect a seal failure. Failed seals can readily be replaced.

2. *Comment.* One commenter stated that the TN-24 cask is seriously flawed. Test and operation at Idaho showed the TN-24 storage sleeves to be subject to warpage after only a few years storage. A fuel assembly became stuck in the TN-24 cask while trying to remove it. It could not be removed and it was forced back into the cask.

Response. The NRC discussed this issue with personnel at INEL who worked on the tests of the TN-24 cask and other casks. These individuals said that a canister of consolidated fuel, not a fuel assembly, got stuck in the TN-24 cask. The canister was larger than a fuel assembly and, unlike a fuel assembly, it had many screws and nuts protruding from it. The storage sleeves in the TN-24 Basket did not warp. The individuals suspect that one of the screws or nuts got caught on an interlocking plate in the basket of the TN-24. The Certificate of Compliance does not allow the storage of consolidated fuel in canisters. Additionally, the basket of the TN-24 tested at INEL is slightly different from the one which Transnuclear plans to use in its certified cask.

3. *Comment.* Some commenters speculated that a catastrophic release of radiation may occur from a possible explosion caused by spontaneously flammable uranium hydride in the presence of oxygen. It is postulated that the temperature inside the cask will be hot enough to rupture fuel rods which will, in turn, cause the presence of hydrogen to create uranium hydride.

Response. The NRC does not believe that an explosion inside a storage cask caused by flammable uranium hydride in the presence of oxygen is credible for the following reasons. Oxygen gas is not expected to be present because all casks are designed to have an inert atmosphere. Further, the formation of uranium hydride is not credible because of the lack of a significant source of hydrogen. Finally, all casks are designed so that the internal temperature will not cause the fuel rods to rupture.

Therefore, the conditions necessary for this scenario to occur would not exist.

4. *Comment.* A number of comments related to gaseous releases from dry storage casks. The commenters asked the following questions. What happens to gaseous components of the decay chain? Are they released to the environment? If not, is pressure buildup over time being considered? A commenter expressed the opinion that casks should have individual radionuclide emission monitoring. An issue was raised about the effects of release of Krypton-85 (Kr-85) gas on electric conditions in the atmosphere.

Response. The gaseous components of the decay chain are expected to be retained within the matrix of the spent fuel or within the fuel rod. In the case of pinhole leaks in the fuel rod cladding, the cask is designed as a secondary confinement barrier to retain gaseous products. Therefore, gaseous components are not released to the environment, and routine monitoring is not required. Pressure build-up of gaseous components in the cask is not significant due to the age of the fuel and integrity of the fuel rod cladding. However, the cask has been analyzed for a hypothetical condition in which all the fuel rods rupture. The resulting pressure within the cask is negligible. The purpose of maintaining an inert atmosphere in the cask is to ensure that fuel rod cladding degradation does not occur, thereby preventing gross fuel rod cladding rupture. In addition to ensuring that new pin hole leaks do not develop in the fuel clad during the storage period, the licensee is responsible for monitoring the environment within the cask prior to its opening to ensure that no unplanned release of radioactive material takes place. The amount of Kr-85 that could be potentially released from dry cask storage is so small that it would not significantly affect the physics or chemistry of the atmosphere.

5. *Comment.* The general licensee must have specific plans for the constant and careful monitoring of the casks and for the safeguarding of the waste to prevent catastrophic accidents or terrorism.

Response. In accordance with § 72.212(b)(5), each reactor licensee must have a physical security organization and program to detect intrusion into the protected area including acts of terrorism, and to take any corrective action. The physical security program, as well as environmental monitoring and radiation protection programs for each reactor facility, provide the necessary monitoring for the casks and

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safeguarding of the spent fuel. Thus, the licensee will be able to determine when corrective action needs to be taken to maintain safe storage conditions to protect the public health and safety. (Also see response to comment number 6).

6. *Comment.* Some commenters expressed concern that no evacuation plan was required. They also stated that there is a lack of contingency planning for catastrophic events. They noted these events could include but would not be limited to:

- a. Direct or indirect lightning strikes on the casks;
- b. Plane crash into the casks;
- c. Sabotage;
- d. Earthquakes;
- e. Fire; and
- f. Emergency planning for cask malfunctions.

A commenter wanted the utility to notify either State or local governments before loading casks to make sure local services know what is going on and know how to respond if necessary under the emergency plan.

Response. The NRC regulations in 10 CFR parts 50 and 72 require that nuclear plant structures, systems, and components important to safety be designed and appropriately protected against dynamic effects, including the effects of tornado-driven missiles, that may result from events and conditions outside the nuclear power unit. If appropriate, this requirement also applies to the effects of possible airplane crashes.

The licensee's site evaluation for a nuclear plant also considers the effect of nearby transportation and military activities. A licensee proposing to use the TN-24 cask is required to evaluate and verify that the Final Safety Analysis Report for the facility encompasses the design basis analysis performed for the TN-24 or any certified cask. Generally, a cask's inherent design will withstand tornado missiles and other design loads and thus, it would be expected that it would also provide protection against the collision forces imposed by light general aviation aircraft (i.e. 1500-2000 pounds) which constitute the majority of aircraft in operation today. NUREG-0800, section 3.5.1.6 "Standard Review Plan for Light Water Reactors," contains methods and acceptance criteria for determining whether the probability of an accident involving larger aircraft (both Military and civilian) exceeds the acceptable criterion. It is incumbent upon the licensee to determine whether or not the reactor site parameters including analysis of earthquake intensity and tornado missiles are enveloped by the cask design basis as

required by § 72.212(b)(3). This would include, an evaluation demonstrating that the requirements of § 72.106 (controlled area for an ISFSI) have been met.

NRC reviewed potential issues related to possible radiological sabotage of storage casks at reactor site ISFSIs in the 1990 rulemaking that added subparts K and L to 10 CFR part 72 (55 FR 29181). NRC regulations in 10 CFR part 72 establish physical protection and security requirements for an ISFSI located within the owner controlled area of a licensed power reactor site. Section 72.212(b)(5) requires that the spent fuel in the ISFSI be protected against the design basis threat for radiological sabotage using provisions and requirements comparable to those applicable for other spent fuel at the associated reactor subject to certain additional conditions and exceptions described in § 72.212. Each utility licensed to have an ISFSI at its reactor site is required to develop security plans and to install a security system that provides high assurance against unauthorized activities which could constitute an unreasonable risk to the public health and safety. The security systems at an ISFSI and its associated reactor are similar in design features to ensure the detection and assessment of unauthorized activities. All alarm annunciations at the ISFSI are monitored by the security alarm stations at the reactor site. Response to intrusion is required. Each ISFSI is periodically inspected by NRC and annually audited by the licensee to ensure that the security systems are operating within their design limits. The validity of the threat is continually reviewed, with a formal evaluation by the NRC every six months.

An adequate evacuation plan exists for the use of certified casks because the existing reactor emergency plan covers the entire site. In addition, contingency planning for the events described exists because these events are covered within the emergency plans of the reactor facilities which will use the cask. In accordance with § 72.212(b), the reactor licensee must review the emergency plan to ensure it provides adequate protection. The licensee's emergency plan provides for responsive action if an event has happened which has the possibility of creating an emergency or after an actual emergency has occurred. Through communications between the utility and State and local governments, the contents of the emergency plan and the actions to be executed by each entity for various situations are understood. In addition, the utility is required to conduct a periodic emergency exercise

involving the utility and government agency staff.

7. *Comment.* One commenter stated that there was no contingency for accidents except to reload the spent fuel back into the pool which may not be possible because of lack of pool storage space or impact on the spent fuel because of the accident.

Response. Because of the design features, as well as the procedures and requirements discussed elsewhere in this response and the associated safety analysis, the likelihood of an accident occurring which will require removal of the spent fuel from the cask is very small. However, even if such an unlikely accident occurs, the cask design is required to have capability to allow ready retrieval of the spent fuel for further processing or disposal (10 CFR 72.122(l)). The NRC does not require a licensee to maintain a specified reserve capability in the spent fuel pool. Many licensees may do so, and they would, therefore, have the option of returning the fuel to the pool in the unlikely event of an accident requiring removal of fuel from the cask. In addition, licensees will have other options available to cover this unlikely contingency including temporary storage in a spare storage cask or use of an existing certified transportation cask. Licensees would have to consider these, and other available options, in such an unlikely event.

8. *Comment.* One commenter noted that the NRC does not specifically require inspections against 10 CFR 72.236 (j)-(m).

Response. The NRC ensures compliance with 10 CFR 72.236 (j) and (k) through inspections, and ensures compliance with 10 CFR 72.236 (l) and (m) through the cask approval process. These inspections will identify different areas that may need correction. If a violation of the requirements is detected, the NRC can impose penalties, or even stop work.

9. *Comment.* Some commenters expressed concern that the measurement of actual effectiveness of a technology in delivering stated requirements must be demonstrated empirically, and that the NRC has not demonstrated the goal of this technology, defined acceptance criteria, or specified how compliance is demonstrated.

Response. For the issue of acceptance criteria, the NRC has established specific requirements in 10 CFR part 72 that must be met in order to obtain a Certificate of Compliance for a cask. The details of the review and bases for the NRC concluding that the cask meets the requirements of 10 CFR part 72 is

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provided in the SER. The goal of dry cask storage technology is to store spent fuel safely. That goal, and the effectiveness of the technology, has been demonstrated empirically and experimentally. Different cask designs may require different types of analysis to demonstrate their safety. Therefore different review methods may be appropriate to reach that conclusion. In each case, the level of review performed is the level necessary to provide assurance of adequate protection of the public health and safety.

10. Comment. One commenter requested that the proceeding be stopped until the NRC revises all regulatory requirements pertaining to the storage of high-level waste and spent fuel to require testing procedures which include testing to destruction.

Response. The NRC does not require testing to destruction or other tests if we have confidence in the analyses which are done or if the design relies on nationally recognized codes and standards that have been accepted by the NRC. Testing to destruction is an option that can be used to confirm design adequacy. However, destructive tests of an entire cask are not necessary to evaluate a design when other non-destructive tests or destructive testing of the components will provide the necessary information to evaluate a design.

11. Comment. Some commenters suggested that the NRC should consider limiting the cask storage time and expressed concern that cask storage could become permanent if the DOE does not accept fuel as they are required to do. Commenters also noted that the NRC requirement that cask viability be evaluated for "at least" 20 years, does not, in itself, guarantee safety in the apparently likely event that the casks remain years or decades beyond the original intended duration.

Response. By approval of the Certificate of Compliance, the NRC has limited the cask storage time to 20 years. After the 20-year period the certificate can be renewed with each renewal period not to exceed 20 years, upon demonstration of continued protection of the public health and safety and the environment. In the event that safe storage of spent fuel in a particular cask cannot be demonstrated beyond 20 years, an alternate means of storage will be required. Finally, the DOE is required by the Nuclear Waste Policy Act of 1982 to accept spent fuel for ultimate disposal. As one commenter noted, DOE proposed a new strategy last winter in which Congress would authorize it to select a site in time to receive spent fuel for interim storage by 1998.

12. Comment. A number of commenters requested a public hearing on this rulemaking. Over half of the commenters requested that a full public hearing be held at each reactor facility site prior to the use of dry cask storage at that site.

Response. Consistent with the applicable procedure, the NRC does not intend to hold formal public hearings on the TN-24 cask rule or separate hearings at each reactor site prior to use of the dry cask technology approved by the Commission in this rulemaking. Rulemaking procedures, used by the NRC for generic approval of the TN-24 cask, including the underlying NRC staff technical reviews and the opportunity for public input, are more than adequate to obtain public input and assure protection of the public health, safety and the environment.

Section 133 of the Nuclear Waste Policy Act of 1982 authorizes NRC to approve spent fuel storage technologies by rulemaking. When it adopted the generic process in 1990 for review and approval of dry cask storage technologies, the Commission stated that "casks * * * [are to] be approved by rulemaking and any safety issues that are connected with the casks are properly addressed in that rulemaking rather than in a hearing procedure." 55 FR 29181 (July 18, 1990). Rulemaking under NRC rules of practice described in 10 CFR 2.804 and 2.805, provides full opportunity for expression of public views, but does not require formal hearings of the type requested by commenters.

In this proceeding, rulemaking clearly provided adequate avenues for members of the public to provide their views regarding NRC's proposed approval of the TN-24 cask, including the opportunity to participate through the submission of statements, information, data, opinions and arguments. In this connection, the NRC staff prepared for public examination two separate technical evaluations for the TN-24 dry cask, each time making detailed, documented findings of compliance with NRC safety, security, and environmental requirements. The NRC staff's first evaluation, prepared in July 1989, reviewed and approved the TN-24 for reference in a site-specific application for an independent spent fuel storage installation. In April 1992, the NRC staff reviewed the TN-24, and approved the design for purposes of initiating this rulemaking to grant a generic approval of the design. In addition, the NRC staff conducted a third review in response to the public comments on the TN-24 in this rulemaking, again finding compliance

with NRC requirements as set forth in this notice of final rule and response to comments.

In addition to reviewing systematically and in-depth the technical issues important to protecting public health, safety and the environment, the NRC has taken extra steps to obtain and fully consider public views on the TN-24 cask, and has made every effort to respond to public concerns and questions about the TN-24 cask's compliance with NRC safety, security and environmental requirements. The initial public comment period opened on June 26, 1992, and closed on September 9, 1992. In addition, NRC received a number of comments after the close of that period, all of which were fully considered. Subsequently, NRC extended the period for submission of public comments until May 17, 1993. Thus, the public comment period for this rule has effectively been almost 11 months. In addition, the NRC staff made every effort to consider comments received after May 17, 1993.

Under these circumstances, formal hearings would not appreciably add to NRC's efforts to ensure adequate protection of public health, safety and the environment, and are unnecessary to NRC's full understanding and consideration of public views on the TN-24 cask.

13. Comment. Some commenters believed that a full democratic process is needed in this decision.

Response. Because this rulemaking was conducted pursuant to the procedures for approving dry storage casks for use under a general license as required by Congress in the Nuclear Waste Policy Act of 1982 and pursuant to public notice and comment procedures of the Administrative Procedure Act, the resulting final rule approving the TN-24 cask is the product of a process prescribed by law.

14. Comment. Some commenters requested that the NRC prepare an environmental impact statement (EIS) and update the Generic EIS for the handling and storage of spent fuel.

Response. The potential environmental impacts of utilities using the TN-24 cask (or any of the other spent fuel casks approved by NRC (10 CFR 72.214)) have been fully considered and are documented in a published Environmental Assessment (EA) covering this rulemaking. Further, as described below, the EA indicates that use of the cask would not have significant environmental impacts. Specifically, the EA notes the 30-plus years of experience with dry storage of spent fuel, identifies the previous

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extensive NRC analyses and findings that the environmental impacts of dry storage are small, and succinctly describes what impacts there are including the non-radiological impacts of cask fabrication (i.e., the impacts associated with the relatively small amounts of steel, concrete, and plastic used in the casks are expected to be insignificant), the radiological impacts of cask operations (i.e., the incremental offsite doses are expected to be a small fraction of and well within the 25 mrem/yr limits in NRC regulations), the potential impacts of a possible dry cask accident (i.e., the impacts are expected to be no greater than the impacts of an accident involving the spent fuel storage basin), and the potential impacts due to possible sabotage (i.e., the offsite dose is calculated to be about one rem). All of the NRC analyses collectively yield the singular conclusion that the environmental impacts and risks are expected to be extremely small.

The absence of significant environmental impacts from dry cask storage at a reactor site is also the conclusion of other NRC EA's for previously approved dry casks analyzed in earlier rulemakings addressing part 72, and in the Commission's Waste Confidence decisions in 1984 (August 31, 1984; 49 FR 34658) and 1989 (September 29, 1989; 54 FR 39765). In the 1984 Waste Confidence decision, the Commission concluded there was reasonable assurance that spent fuel can be safely stored at reactor sites without significant environmental impacts, for at least 30 years beyond expiration of NRC reactor operating licenses. The 1989 Waste Confidence decision review reaffirmed prior Commission conclusions on the absence of significant environmental impacts.

Thus, given the Commission's specific consideration of the environmental impacts of dry storage summarized above, and given the absence of any new information casting doubt on the conclusion that such impacts are expected to be extremely small and not environmentally significant, no meaningful environmental insights are likely to be gained from further preparation of either an EIS or an updated GEIS for the dry storage methodology.

The EA covering the proposed rule, as well as the finding of no significant impact (FONSI) prepared and published for this rulemaking, fully comply with the NRC environmental regulations in 10 CFR part 51. Moreover, since the Commission's environmental regulations in part 51 implement the National Environmental Policy Act (NEPA) and give proper consideration to

the guidelines of the Council on Environmental Quality, they assure that the EA and the FONSI conform to NEPA procedural requirements, and that further analyses are therefore not legally required.

In connection with the EA and FONSI, it bears emphasizing that 10 CFR part 72, subpart K already authorizes dry cask storage and already approves dry casks for use by utilities to store spent fuel at reactor sites. See 10 CFR 72.214 for a listing information on Cask Certificate Nos. 1000 through 1003 and 1007. The present rulemaking is accordingly for the limited purpose of adding one more cask to the list of casks already approved by NRC. Furthermore, the cask, to be added to the NRC list by this rulemaking, will comply with all applicable NRC safety requirements.

Finally, this rulemaking applies to cask use by any power reactor licensee within the United States. Therefore, it is not dependent on any one individual State's actions including preparation of a separate EIS by any State. Further, nothing in this rulemaking would preclude any State from implementing its environmental statutes and regulations as may otherwise be permitted by law.

15. *Comment.* Some commenters believed that a cost/benefit analysis should be prepared.

Response. A Regulatory Analysis which considers both benefits and impacts of adding the TN-24 cask to the list of NRC-approved casks under 10 CFR part 72, subpart K, was prepared in support of this rulemaking action. It was included as part of the notice of proposed rulemaking and is also included in this final rulemaking notice. This regulatory analysis reflects the limited economic scope of this rulemaking.

16. *Comment.* Some commenters indicated that operating procedures, evaluation reports, and training programs should be submitted to the NRC, state and local government authorities, and placed in local libraries near such facilities.

Response. These documents expand on generically approved procedures in the SAR and Certificate of Compliance. In accordance with the NRC requirements, licensees are not required to submit this information to the NRC or other government authorities. Rather, this information is evaluated by the licensee and is available for inspection by the NRC. The NRC's inspection program includes requirements to inspect these procedures and these inspection reports are available in the NRC Public Document Room.

17. *Comment.* One commenter believed that the Certificate of Compliance should list all NRC regulations controlling the use of the specific cask for the storage of spent fuel.

Response. The Certificate of Compliance contains a general reference to the provisions of 10 CFR part 72, which includes in subpart K, the regulations relevant to the storage of spent fuel under a general license. A specific reference to each regulation section is, therefore, unnecessary.

18. *Comment.* Some commenters believed that it is not acceptable to increase the number of approved cask designs. Some suggested that alternative actions to dry cask storage should be considered.

Response. The NRC, in implementing the Nuclear Waste Policy Act of 1982, has an obligation to approve the use of casks for the storage of spent fuel, provided these casks meet applicable regulatory requirements. The NRC agrees with the commenter that these casks should contain radioactivity and protect workers, the public, and the environment. The previous rulemaking (55 FR 29181; July 18, 1990) found that spent fuel stored in dry storage casks designed to meet the NRC regulatory requirements can contain radioactivity safely. This rulemaking adds one cask design, which meets the safety requirements previously developed. The previous responses to comments, as well as the detailed safety and environmental analyses underlying this rulemaking, and described elsewhere in this document, all reveal that the TN-24 cask will conform to NRC requirements, and that its use should not pose the potential for significant environmental impacts.

The principal alternatives available to the NRC would be procedural in nature, whereby dry cask spent fuel storage could be approved under other existing or new parts of title 10, Code of Federal Regulations. Regardless of the method selected to approve such dry cask spent fuel storage, all would have similar environmental impacts.

The NWPA directed that the NRC approve one or more technologies, that have been developed and demonstrated by DOE, for the use of spent fuel storage at the sites of civilian nuclear power reactors without, to the extent practicable, the need for additional site-specific review. The NWPA also directed that the NRC, by rulemaking, set forth procedures for licensing the technology. Regulations for accomplishing this are in place. Therefore, the no action alternative is not acceptable.

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Consideration of alternative spent fuel storage technologies is beyond the scope of this rulemaking. This action is being taken in response to section 218(a) of the Nuclear Waste Policy Act of 1982 which specifies dry storage.

19. Comment. Some commenters asked who would be responsible for oversight of fuel stored in casks after decommissioning of the reactor, shipment of the fuel off-site, and for decommissioning of the casks after stored fuel was shipped off-site.

Response. In accordance with § 50.54(bb), all operating nuclear power reactor licensees are required, no later than 5 years prior to the expiration of the operating license, to provide the NRC, for review and approval, the licensee's program to manage and provide funding for the management of all irradiated fuel. NRC's review of the licensee's fuel management program will be undertaken as part of continued licensing under the provisions of parts 50 and 72 of the Commission's regulations.

With respect to decommissioning, the licensee may select a decommissioning alternative that will:

1. Allow storage of spent fuel in the spent fuel pool, in which case the licensee will be required to maintain its part 50 license;
2. Allow storage of fuel in a certified cask under the provisions of part 72 as long as the part 50 license remains in effect; or
3. Allow storage in an on-site independent spent fuel storage installation under the site specific licensing provisions of part 72.

For any of the above alternatives, the licensee will be responsible for safe storage of spent fuel during the period of storage, for later shipment off-site for further storage or disposal by the Federal Government and for final decommissioning of the reactor spent fuel pool, dry storage cask or ISFSI to a level permitting unrestricted release of the site facility. The requirements for decommissioning are provided in § 72.30, the section that defines decommissioning planning, financial assurance, and recordkeeping provisions.

Finding of No Significant Environmental Impact: Availability

Under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, the Commission has determined that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. This final rule

adds an additional cask to the list of approved spent fuel storage casks that power reactor licensees can use to store spent fuel at reactor sites without additional site-specific approvals by the Commission. The environmental assessment and finding of no significant impact on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the Environmental Assessment and the Finding of No Significant Impact are available from Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC, 20555, telephone (301) 492-3803.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0132.

Regulatory Analysis

On July 18, 1990 (55 FR 29181), the Commission issued an amendment to 10 CFR part 72, which provided for the storage of spent nuclear fuel under a general license. Any nuclear power reactor licensee can use these casks if: (1) They notify the NRC in advance; (2) The spent fuel is stored under the conditions specified in the cask's Certificate of Compliance; and (3) The other conditions of the general license are met. As part of the 1990 rulemaking (55 FR 29181), four spent fuel storage casks were approved for use at reactor sites, and were listed in 10 CFR 72.214. That rulemaking envisioned that storage casks certified in the future could be routinely added to the listing in § 72.214 through rulemaking procedures. Procedures and criteria for obtaining NRC approval of new spent fuel storage cask designs were provided in 10 CFR 72.230. On April 7, 1993 (58 FR 17948), a fifth storage cask was added to that list.

The present regulatory action is being taken to add a sixth storage cask to the listing in § 72.214 in response to the Congressional direction in Sections 133 and 218 of the Nuclear Waste Policy Act of 1982. The alternative to this action is to withhold certification of this new design and to consider the granting of a site-specific license to each utility that applied for permission to use this new cask. This would be in direct conflict with Congressional direction to establish procedures for the licensing of

technologies for the use of spent fuel storage at the sites of civilian nuclear power reactors without, to the extent practicable, the need for additional site reviews. Site-specific licenses alternative would be more costly and time consuming because each site-specific license would require a specific review. In addition, withholding certification would ignore the rulemaking procedures and criteria in 10 CFR part 72, Subparts K and L, for the addition of new cask designs. Also, the alternative would exclude new vendor cask designs from the approved NRC list under Subpart K without cause and would arbitrarily limit choice of cask designs available to power reactor licensees.

This final rulemaking will eliminate the above problems. Further, this action will have no adverse effect on the public health and safety.

The benefit of this final rule to nuclear power reactor licensees is to make available a greater choice of spent fuel storage cask designs which can be used under a general license. However, the newer cask designs may or may not have an advantage over the existing designs in that power reactor licensees may or may not prefer to use the newer casks. The new cask vendors with casks to be listed in § 72.214 benefit by having to obtain NRC certificates once for a cask design which can then be used by many power reactor licensees under the general license. Vendors with cask designs already listed may be adversely impacted in that power reactor licensees may choose a newly listed design over an existing one. However, the NRC is required by its regulations and NWP Act requirements to establish a procedure and consider applications to certify and list approved casks. The NRC also benefits because it will be able to certify a cask design based on one generic safety and environmental review, for use by multiple licensees. This final rulemaking has no significant identifiable impact or benefit on other Government agencies.

Based on the above discussion of the benefits and impacts of the alternatives, the NRC concludes that the requirements of the final rule are commensurate with the Commission's responsibilities for protection of the public health and safety and the common defense and security. No other available alternative is believed to be as satisfactory, thus, this action is recommended.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rule will

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not have a significant economic impact on a substantial number of small entities. This amendment affects only licensees owning and operating nuclear power reactors and cask vendors. The owners of nuclear power plants do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, thus, a backfit analysis is not required for this final rule, because this amendment does not involve any provisions which would impose backfits as defined in § 50.109(a)(1).

List of Subjects in 10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 72.

58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

58 FR 67657
Published 12/22/93
Effective 1/1/94

*Standards for Protection Against
Radiation; Removal of Expired Material*

See Part 20 Statements of Consideration

58 FR 68726
Published 12/29/93
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism*

See Part 30 Statements of Consideration

59 FR 1618
Published 1/12/94
Effective 1/28/94

*Self-Guarantee as an Additional
Financial Assurance Mechanism;
Correction*

See Part 30 Statements of Consideration

59 FR 14085
Published 3/25/94
Effective 5/31/94

*NRC Operations Center Commercial
Telephone Number Change*

See Part 20 Statements of Consideration

59 FR 35618
Published 7/13/94
Effective 10/11/94

*Licensee Submittal of Data in
Computer-Readable Form*

See Part 74 Statements of Consideration

59 FR 36026
Published 7/15/94
Effective 8/15/94

*Timeliness in Decommissioning of
Materials Facilities*

See Part 30 Statements of Consideration

59 FR 64283
Published 12/14/94
Effective 1/13/95

10 CFR PART 72

RIN 3150-AE37

Notification of Events

AGENCY: Nuclear Regulatory
Commission

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to revise licensee reporting requirements regarding the notification of events related to radiation safety at Independent Spent Fuel Storage Installations (ISFSIs) and a Monitored Retrievable Storage Installation (MRS). This action will ensure that significant occurrences at these licensed facilities are promptly reported to NRC so that the Commission can evaluate whether the licensee has taken appropriate actions to protect the public health and safety and whether prompt NRC action is necessary to address generic safety concerns.

EFFECTIVE DATE: January 13, 1995

FOR FURTHER INFORMATION CONTACT:
Naïem S. Tanious, Office of Nuclear
Regulatory Research, U.S. Nuclear
Regulatory Commission, Washington,
DC, 20555 Telephone (301) 415-6103.

SUPPLEMENTARY INFORMATION:

Background

On August 16, 1991, (56 FR 40757), the NRC amended its regulations in Title 10, Code of Federal Regulations (10 CFR), parts 20, 30, 40, and 70 to better describe those events that must be reported to the NRC because they pose a potential hazard to public health and safety or the environment and should be evaluated by NRC to determine whether further NRC action is necessary. These new reporting requirements covered the following areas: Inability to control licensed material, unplanned contamination events, failure of safety

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equipment, personal injury events, and fires and explosions.

Public comments received when the amendments were proposed suggested that part 72 also be amended to require notification of events at an ISFSI or MRS. The NRC responded that it would consider the suggestion and initiate rulemaking to amend part 72, if appropriate. In considering the suggestion, the NRC took account of the fact that, except for criticality, part 72 itself contains no generally applicable reporting requirements for the types of events covered by the recent amendments to parts 30, 40, and 70. Furthermore, to date among the seven existing part 72 specific license ISFSIs, the reporting requirements have been imposed by license condition on a case-by-case basis and are not consistent. Therefore, the NRC decided that it is desirable to proceed with amending part 72.

On September 14, 1993 (58 FR 48004), the NRC published the notice of proposed rulemaking that would add new reporting requirements to part 72. The proposed reporting requirements in § 72.75 were similar to the reporting requirements in the amendments to parts 30, 40, and 70, but with some changes appropriate to ISFSIs and the MRS. These changes dealt with defects in storage systems, unplanned medical treatments involving radioactive contamination, and fires and explosions. The public comment period expired November 29, 1993.

Public Comments on the Proposed Rule

The NRC received letters from seven commenters: one letter from an organization that represents the nuclear power industry, one from a private citizen, two from States, and three from electric utilities. All of the commenters supported the goal of establishing uniform reporting requirements; however, most commenters identified specific provisions that they believed should be revised. Some commenters supported the proposed requirements because they are generally consistent with existing part 50 requirements. The following is a summary of the comments and NRC's responses.

The 4-hour threshold for immediate reporting

Some commenters stated that the 4-hour threshold for immediate reports was too long. They were concerned that events described in the proposed rule may require actions by local authorities to protect persons offsite. Therefore, the commenters believed that immediate reports should be made within minutes, not hours.

The NRC agrees that emergencies should be reported immediately. Even though already addressed in § 72.32, § 72.75 has been clarified to explicitly specify that all emergencies, as classified by the licensee's emergency plan or by license condition, must be reported to the NRC Operations Center after notification to State and local authorities. Additionally, this notification must be made within one hour of the emergency declaration by the licensee. The remaining reporting requirements in § 72.75 are for events which are significant, but not emergencies; therefore, reporting to the NRC within one hour is not necessary. The NRC believes that for these non-emergency type events a 4-hour reporting period is appropriate.

Immediate notification of off-site agencies

In one commenter's view, appropriate off-site agencies should be notified immediately, i.e., within 15 minutes, of any classifiable accident, and that timely notification is essential to ensure that emergency response actions, when required, are not unduly or unnecessarily delayed.

Section 72.75 has been clarified to specify that emergency events be promptly reported to off-site agencies as specified in the licensee's emergency plan. The NRC agrees that, in the event of an emergency, NRC and State and local agencies should be notified in less time than 1 hour. In particular, if an event is significant enough to be an emergency, then part 72 emergency planning requirements would govern, including notification of the NRC Operations Center and off-site State and Federal agencies as soon as practical and, in any event, in less than 1 hour.

In addition to achieving more consistency in reporting events among ISFSI licensees, two objectives of this rulemaking remain the same as those already achieved by the earlier notification of events rulemaking for parts 30, 40, and 70, that is, to assure that all significant events are reported, and that the NRC and the industry have knowledge of and feedback from operating experience (56 FR 40757, August 16, 1991, general comment No. 3).

Thirty-day time limit for written reports

One commenter stated that the 30-day time limit for written followup reports was too long. The commenter stated that the public has a right to know of events as soon as possible and that written reports should be submitted within one week so they can be placed in the public document room.

The NRC notes that the telephone notifications made to the Operations Center are formalized and distributed to the public document room and the NRC's computer bulletin board within approximately one working day. However, for a written followup investigation, the 30-day time limit is standard. For these types of events, the licensee may need to take measurements, collect samples, decontaminate and clean up, assemble the facts, and write the report. Also, a 30-day period has been found to be adequate for similar requirements in parts 20, 30, 40, 50, and 70. Therefore, the 30-day time limit is a balance of the public's need to know as soon as possible and the licensee's need to have an adequate amount of time to complete the previously described tasks in order to provide a meaningful report.

Changing the words "a medical facility" to "an offsite medical facility"

One commenter recommended changing the words, "a medical facility" to "an offsite medical facility" in § 72.75(a)(5). With this change § 72.75(a)(5) would read: "An event that requires unplanned medical treatment at an offsite medical facility of an individual with radioactive contamination on the individual's clothing or body which could cause further contamination." The commenter suggested that this word change would make § 72.75(a)(5) consistent with § 50.72(b)(2)(v).

The NRC agrees with the commenter and the change has been made in the final rule. The word "offsite" was not used in the earlier reporting requirements that were added to parts 30, 40, and 70 because some of these licensees are hospitals. It is clear that a hospital would not be a part 72 specific license ISFSI.

Mechanism for notification of off-site authorities

One commenter asked whether there is a mechanism in place to ensure that off-site authorities will be notified in a timely manner.

Yes. If the event is an emergency, the licensee emergency plans are such a mechanism. If the event is not an emergency, this rule provides a mechanism to ensure timely notification.

Revising § 72.216 to include § 72.74 events

One commenter suggested that if 10 CFR 72.216 is to be revised to require compliance with the new reporting requirements of § 72.75, it would be logical to also revise it to include 10

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CFR 72.74 concerning criticality reporting requirements.

The NRC agrees with the comment and the final rule has been revised such that § 72.216 now requires reporting of those events described in § 72.74.

Reporting events under § 50.72 instead of § 72.75

One commenter suggested that general licensees located at a reactor site with a part 50 operating license should be required to report events in accordance with § 50.72, instead of the new § 72.75. According to the commenter, this change would promote uniformity in reporting requirements without creating an additional burden on general licensees.

The NRC disagrees. Such general licensees under part 72 are already required to comply with § 50.72, which covers predominantly reactor related events and conditions but not spent fuel and high-level waste (HLW). Thus, it is necessary for general licensees to comply with § 72.75, which only covers events and conditions related to spent fuel and HLW.

Uniformity of requirements of 10 CFR 72.75 and 10 CFR 50.72

One commenter expressed the concern that the requirements of § 72.75 and § 50.72 are not uniform. The commenter pointed out that the proposed rule in §§ 72.75(a)(1) and (a)(4) requires reporting within 4 hours, whereas similar requirements in §§ 50.72(b)(1)(i)(B), and (b)(1)(vi) require reporting of the same events within 1 hour.

Reporting of similar events or conditions are covered in both § 50.72 and § 72.75, but the potential consequences are not the same. For example, events and conditions covered by § 50.72 (b)(1) relate to nuclear power plants whereas events and conditions covered by § 72.75 relate to spent fuel or HLW. The consequences of certain events at nuclear power reactors have the potential to be somewhat more significant than the consequences of similar events involving spent fuel or HLW at ISFSIs. Therefore, the reporting time has been linked to the potential consequences of the event and uniformity is not necessary. It should be noted, however, that the immediate notification requirements for emergency event reporting have not been changed. This has been clarified in § 72.75.

Reporting safety equipment failures

Some commenters requested that the proposed reporting requirement in § 72.75(b)(2) for safety equipment failures be revised to be consistent with

the language in § 50.72(b)(2)(iii). The commenters stated that the proposed reporting requirement seemed significantly more restrictive than § 50.72.

The NRC disagrees. The requirements in § 50.72(b)(2)(iii) apply to events or conditions of the nuclear power plant and require reporting within four hours whereas § 72.75 (b)(2) applies to events or conditions of the spent fuel or HLW and requires reporting within 24 hours.

Having considered all comments received and other input, the NRC has determined that the following final rule should be promulgated.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in the categorical exclusion of 10 CFR 51.22(c)(3)(iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150-0132.

The public reporting burden for this collection of information is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC, 20555, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0132), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The Commission requested public comments on the draft regulatory analysis, but no comments were received. No changes to the draft regulatory analysis were therefore considered to be necessary. As a result, the draft regulatory analysis is adopted as the final regulatory analysis without

change. The regulatory analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC.

Regulatory Flexibility Certification

The NRC has prepared an analysis of the impact of this final rule on small entities. The analysis indicates that the final rule is expected to have no significant economic impact on part 72 licensees, because the estimated cost to industry of reporting postulated events would be in the range of \$0 - 2112 annually. Moreover, none of the current part 72 licensees are considered small entities. In any case, no report would be required of licensees unless there is an incident involving spent fuel or HLW that meets the criteria specified in these amendments. Hence, the impact on part 72 licensees should be minimal. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC.

Backfit Analysis

The NRC has determined that the backfit rule 10 CFR 50.109, does not apply to this final rule because these amendments do not involve any provisions which would impose backfits as defined in § 50.109(a)(1). Also, the NRC has determined that backfitting requirements in § 72.62 do not apply to this proposed rule because the proposed event reporting requirements are not procedures required to operate an ISFSI or MRS. Therefore, a backfit analysis is not required.

Criminal penalties

For purposes of Section 223 of the Atomic Energy Act of 1954, as amended, relating to willful violations of requirements notice is hereby given that these amendments are being adopted and promulgated pursuant to Sections 161b, 161i, or 161o of the Act.

List of Subjects

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Nuclear Waste Policy Act of 1982, as amended, and 5 U.S.C. 553, the Commission is proposing to adopt the following amendments to 10 CFR part 72

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59 FR 65898
Published 12/22/94
Effective 1/23/95

10 CFR Part 72

RIN 3150-AF02

List of Approved Spent Fuel Storage Casks: Addition

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to add the Standardized NUHOMS Horizontal Modular System to the List of Approved Spent Fuel Storage Casks. This amendment allows the holders of power reactor operating licenses to store spent fuel in this approved cask under a general license.

EFFECTIVE DATE: January 23, 1995.

ADDRESSES: Copies of the environmental assessment and finding of no significant impact, as well as, the public comments received on the proposed rule are available for inspection and/or copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from the individuals listed under the next heading below.

FOR FURTHER INFORMATION CONTACT: Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6195, or Dr. Edward Y. S. Shum, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-7903.

SUPPLEMENTARY INFORMATION:

Background

Section 218(a) of the Nuclear Waste Policy Act of 1982 (NWPA) includes the following directive: "The Secretary of the Department of Energy (DOE) shall

establish a demonstration program in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear reactor power sites, with the objective of establishing one or more technologies that the [Nuclear Regulatory] Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission." After subsequent DOE technical evaluations and based on a full review of all available data, the Commission approved dry storage of spent nuclear fuel in a final rule published in the Federal Register on July 18, 1990 (55 FR 29181). The final rule established a new Subpart K within 10 CFR Part 72 entitled "General License for Storage of Spent Fuel at Power Reactor Sites."

Irradiated reactor fuel has been handled under dry conditions since the mid-1940s when irradiated fuel examinations began in hot cells. Light-water reactor fuel has been examined dry in hot cells, since approximately 1960. Irradiated reactor fuel has been stored continuously at hot cells under dry conditions for approximately two decades. The NRC's experience with storage of spent fuel in dry casks is extensive as described in the proposed rule to establish 10 CFR Part 72, Subpart K (May 5, 1989; 54 FR 19379). Further, the United States has extensive experience in the licensing and safe operation of independent spent fuel storage installations (ISFSIs). By the end of 1994, six site-specific licenses for dry cask storage will have been issued: Virginia Power's Surry Station, issued July 2, 1986; Carolina Power and Light's (CP&L) HB Robinson Station, issued August 13, 1986; Duke Power's Oconee Station, issued January 29, 1990; Public Service of Colorado's Fort St. Vrain facility, issued November 4, 1991; Baltimore Gas and Electric's (BG&E) Calvert Cliffs Station, issued November 25, 1992; and Northern States Power's (NSP) Prairie Island Nuclear Generating Plant, issued October 19, 1993. All except NSP have commenced operation and loaded fuel. At the end of 1994, dry storage spent fuel inventories of these utilities are as follows: 500 assemblies at Virginia Power, 60 assemblies at CP&L, 530 assemblies at Duke Power, 1480 fuel elements at Public Service of Colorado, and 190 assemblies at BG&E. NSP plans to begin storing fuel soon. In May 1993, Consumers Power's Palisades Station commenced operation and loaded fuel under the provisions of the general license in 10 CFR Part 72, Subpart K. At

the end of 1994, approximately 168 assemblies are stored at Palisades.

As a result of the growing use of dry storage technology, the NRC has gained over 35 staff years of experience in the review and licensing of dry spent fuel storage systems. In addition, the NRC draws upon the knowledge and experience of outside scientists and engineers recognized as experts within their respective fields in the performance of the independent safety analysis of the system and component designs submitted by applicants for dry cask licenses or certification. Reviews of numerous applications seeking site-specific licenses, certificates of compliance, or approvals of topical reports, have been conducted over the past eight years. More recently, the NRC published a notice of proposed rulemaking in the Federal Register on June 2, 1994 (59 FR 28496), which proposed to amend 10 CFR 72.214 to include one additional spent fuel storage cask (i.e., the VECTRA Technologies, Inc., Standardized NUHOMS Horizontal Modular Storage System) on the list of approved spent fuel storage casks that power reactor licensees may use under the provisions of a general license issued by NRC in accordance with 10 CFR Part 72, Subpart K. The Standardized NUHOMS consists of two systems: (1) The NUHOMS-24P holds 24 specified pressurized-water reactor spent fuel assemblies and (2) The NUHOMS-52B holds 52 specified boiling-water reactor spent fuel assemblies.

Subsequent to the expiration of the 75-day public comment period on August 16, 1994, NRC received a request, dated August 11, 1994, for a 6-week extension of the comment period from Connie Kline of the Sierra Club on behalf of 12 citizen groups. The extension request asserted that several proprietary documents related to this rulemaking were not available to the public for approximately 2 weeks at the beginning of the comment period. The NRC granted the request on August 29, 1994 (59 FR 44381) by extending the public comment period to September 30, 1994.

VECTRA Technologies, Inc. (formerly Pacific Nuclear Fuel Services, Inc.) submitted to the NRC a Safety Analysis Report (SAR) entitled "Safety Analysis Report for the Standardized NUHOMS Horizontal Modular Storage System for Irradiated Nuclear Fuel," NUH-003, Revision 2, dated November 1993. Subsequently, VECTRA Technologies, Inc. provided additional information to the NRC related to the SAR. In March 1994, the NRC issued a draft Safety Evaluation Report (SER) entitled "Safety

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Evaluation Report of Pacific Nuclear Fuel Services, Inc. Safety Analysis Report for the Standardized NUHOMS Horizontal Storage System for Irradiated Nuclear Fuel" approving the SAR. The NRC issued a draft Certificate of Compliance by letter to Mr. Robert D. Quinn from Mr. Frederick C. Sturz dated April 28, 1994. These documents are part of the docket and record that support the proposed rule published in the Federal Register on June 2, 1994 (59 FR 28496).

The objective of 10 CFR Part 72 is to protect the public health and safety by providing for the safe confinement of the stored fuel and preventing the degradation of the fuel cladding. The review criteria used by the NRC for review and approval of dry cask storage under 10 CFR Part 72 consider the following factors: siting, design, quality assurance, emergency planning, training, and physical protection of the fuel. Phenomena such as earthquakes, high winds, tornados, tornado driven missiles, lightning, and floods are included in the review of a specific system, either for a certificate of compliance or a site-specific license. In addition, applicants must demonstrate to NRC's satisfaction that their proposed dry cask system will resist man-made events such as explosions, fire, and drop or tipover accidents.¹

Based on further NRC review and analysis of public comments, both the SER and Certificate of Compliance for the Standardized NUHOMS were modified. Section M contains a description of changes to the SER and Certificate of Compliance in response to public comments. The NRC finds that the Standardized NUHOMS, as designed and when fabricated and used in accordance with the conditions specified in its Certificate of Compliance, meets the requirements of 10 CFR Part 72. Thus, use of the Standardized NUHOMS, as approved by the NRC, will provide adequate protection of the public health and safety and the environment. With this final rule, the NRC is approving the use of the Standardized NUHOMS under the general license in 10 CFR Part 72, Subpart K, by holders of power reactor operating licenses under 10 CFR Part 50. Simultaneously, the NRC is issuing a final Certificate of Compliance to be effective on January 23, 1995. A copy of the Certificate of Compliance is available for public inspection and/or copying for a fee at the NRC Public Document Room, 2120 L Street, NW, (Lower Level), Washington, DC.

¹ The design bases for these events and accidents are contained within 10 CFR Part 72.

Public Responses

In response to the proposed addition of the Standardized NUHOMS, 239 comments in 27 letters with one supplement were received from individuals, public interest groups, an environmental group, an association, industry representatives, a city, states, and one Federal agency. One commenter withdrew his comments. Many of these letters contained similar comments that have been grouped together and addressed as a single issue. All comments have been grouped into 15 broad issues designated A through O. A summary of the comments and an NRC analysis and response to those comments is included for each broad issue. The NRC has identified and responded to 89 separate issues that include the significant points raised by each commenter.

A number of comments were related to the disposal of high-level waste and the use of dry cask storage technology in general, rather than to the acceptability of this particular cask. Examples of these comments include:

- The Federal Government's failure to resolve questions about the permanent storage of nuclear waste leaves both the plant and public with limited options: additional storage in pools, additional storage in dry casks, or plant shutdown. The Federal Government has an obligation to resolve the issue of permanent or interim storage. It would be difficult to overstate the need for dispatch in doing so, as hundreds of American communities will eventually face this problem.
- It is not fair to the public of Ohio to link Toledo Edison Company's attempts to continue the safe storage of its nuclear fuel with insistence by others that the NRC shut down Davis-Besse and every other nuclear plant in the country.
- Only dry storage casks that are compatible with future DOE interim or permanent storage operation, including transportation, should be approved for use under the general license and listed in 10 CFR 72.214.

These comments deal with broad policy and program issues relating to the storage and disposal of high-level radioactive waste, including the DOE's repository program and as such are beyond the scope of this rule. However, there is a summary of relevant information on many of these broad issues in Group G. Many comments were directed at the Standardized NUHOMS-24P with only a few comments being specific to the Standardized NUHOMS-52B.

Many commenters discussed topics that were not the subject of this rulemaking and thus were not specifically addressed by the NRC staff as a part of this final rule action. These comments express opposition to the use of dry cask storage and included the following suggestions and topics:

- (1) Nuclear plants generating radioactive waste should be shut down.
- (2) The production of radioactive waste should be stopped when the existing spent fuel pool (and off-load-reactor capacity) is full.
- (3) A formal hearing should be required at each site using dry storage casks.
- (4) The Davis-Besse plant should be shut down.
- (5) The use of nuclear power should be stopped and existing sites cleaned up.
- (6) Palisades experienced problems in using the VSC-24 cask.
- (7) Alternative forms of power should be used.

Finally, many commenters expressed concern over the ability of dry cask storage designs, presumably including the Standardized NUHOMS, to store spent fuel safely. The following responses to these comments reflect a small but important portion of the NRC's review of health, safety, and environmental aspects of the Standardized NUHOMS to ensure that the cask is designed to provide protection of the public health and safety and environment under both normal conditions and severe, unlikely but credible, accident conditions. Dry cask storage systems are massive devices, designed and analyzed to provide shielding from direct exposure to radiation, to confine the spent fuel in a safe storage condition, and to prevent releases of radiation to the environment. They are designed to perform these tasks by relying on passive heat removal and confinement systems without moving parts and with minimal reliance on human intervention to safely fulfill their function for the term of storage. The NRC staff has concluded that the methods of analysis are conservative and assure that the design has appropriate margins of safety under both normal and accident conditions.

Analysis of Public Comment

A. A number of commenters raised issues relating to cask handling and the ability of the cask to withstand drop and tipover accidents.

A.1. *Comment.* Several commenters wanted the transfer cask containing the Dry Storage Canister (DSC) to be analyzed for the maximum possible drop, regardless of whether that drop

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can occur inside or outside the spent fuel building. One commenter alleged that a drop of the transfer cask into the spent fuel pool would damage fuel assemblies in the pool. Another commenter was concerned about jamming the transfer cask in the spent fuel pool. What would happen to the cask if jammed fuel could not be extricated? Would the entire 40 ton transfer cask be left in the fuel pool?

Response. Use of the Standardized NUHOMS inside the fuel handling building would be conducted in accordance with the 10 CFR Part 50 reactor operating license. These cask handling operations, including loading, retrieval, and training, must be evaluated by the general licensee as required by 10 CFR 72.212(b)(4) to ensure that procedures are clear and can be conducted safely. Load handling activities and possible load drop events with structural and radiological consequences related to transfer cask drops inside the spent fuel building are subject to the provisions of 10 CFR 50.59. Thus, the licensee must determine whether the activities involve any unreviewed facility safety question or any change in facility technical specifications. The transfer cask and DSC designs were evaluated by the NRC against the criteria for controlling heavy loads that are found in NRC's NUREG-0612,² "Control of Heavy Loads at Nuclear Power Plants," and American National Standards Institute (ANSI) N14.6, "Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds or More." The lifting yoke associated with the transfer cask is a special purpose device designed to ANSI N14.6 criteria to ensure that the yoke can safely lift the wet transfer cask containing the DSC out of the spent fuel pool and can safely lift the dry transfer cask and DSC to the transport trailer. Pursuant to 10 CFR 50.59, for those reactor plants with a shipping cask drop analysis, the licensee must verify that the shipping cask drop analysis adequately describes the consequences of a postulated transfer cask drop and that no unreviewed safety question exists. For those reactor plants that may lack a shipping cask drop analysis, each licensee must perform a transfer cask drop analysis pursuant to 10 CFR 50.59.

² Copies of NUREG-0612 and NUREG/CR 1815 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, DC 20402-9328. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW (Lower Level), Washington, DC 20555-0001.

Specific requirements for lifting the transfer cask are contained in the Certificate of Compliance and SER. However, movement of the transfer cask in the spent fuel pool building must, as required by 10 CFR 72.212(b)(4), be evaluated by the licensee pursuant to 10 CFR 50.59. The possibility of jamming a transfer cask while in the spent fuel pool is one of many issues to be evaluated under 10 CFR 50.59.

A.2. Comment. One commenter asked why the transfer cask with the DSC can be lifted to 80 inches outside the spent fuel pool building when it has to be unloaded and inspected for damage if it drops from above 15 inches. Why not limit the height to 15 inches?

Response. The transfer cask with the DSC rides on the transport trailer at a height of greater than 15 inches and therefore was analyzed for a drop from that height (80 inches). A drop from a height between 15 and 80 inches does not pose a public health and safety hazard. However, to ensure safety the NRC requires the DSC to be unloaded and inspected for damage.

A.3. Comment. One commenter asked about the tipover analysis or drop analysis result.

Response. The tipover, end drops, and horizontal drop analyses form part of the structural design basis for the Standardized NUHOMS design. The designer, VECTRA, described these drop and tipover analyses in SAR, Section 8.2.5. The NRC's evaluation of the vendor's analyses is described in SER, Section 3.2.2.3E. The NRC found the results of these analyses to be satisfactory, because the calculated stresses were all within the allowable criteria of the American Society of Mechanical Engineers (ASME) Code.

A.4. Comment. Several commenters, citing Section 1.1.1 of the draft Certificate of Compliance, requested that the postulated cask drop accident in the plant fuel handling area be included in the list of parameters and analyses that will need verification by the system user (for the 10 CFR 50.59 safety evaluation).

Response. As stated in Section 1.1.1 of the draft Certificate of Compliance, a holder of a 10 CFR Part 50 license before use of the general license under 10 CFR Part 72, must determine whether activities related to storage of spent fuel involve any unreviewed facility safety issues or changes in facility technical specifications as provided under 10 CFR 50.59. Fuel handling including the possible drop of a spent fuel cask is among the activities that are required to be verified. Fuel handling operations, including spent fuels and fresh fuels, are routine within the nuclear power

plant and are subject to NRC regulation under 10 CFR Part 50. A holder of a 10 CFR Part 50 license is required to establish operating procedures for spent fuel handling and to provide emergency planning to address a potential cask drop accident in the reactor's fuel handling area (Certificate of Compliance, Section 1.1.4). Therefore the NRC considers it clear that the spent fuel operation in the nuclear power plant should be evaluated to verify that the possible drop of a spent fuel cask does not raise an unreviewed safety issue or require a facility technical specification change appropriately regulated under 10 CFR Part 50.

A.5. Comment. One commenter stated that there is no place to unload the spent fuel in the event of a canister breach. There is no indication that the canister, the canister lifting mechanism, or the transport mechanism to move the canister into the cask, are nuclear grade equipment, or have been designed to prevent a single failure from breaching the canister and circumventing the protection provided by the sole barrier provided by the canister wall itself.

Response. According to 10 CFR 72.122(1), storage systems must be designed to allow ready retrieval of the spent fuel in storage. A general licensee using an NRC-approved cask must maintain the capability to unload a cask. Typically, this will be done by maintaining the capability to unload a cask in the reactor fuel pool. Other options are under consideration that would permit unloading a cask outside the reactor pool.

With respect to canister equipment and design, the DSC or canister is designed to the ASME Boiler and Pressure Vessel Code (BPVC), Section III, Subsection NB. The DSC provides a containment boundary for the radioactive material and the cladding of the fuel rods provides confinement of fuel pellets. Only intact fuel assemblies (rods) with no known cladding defects greater than pin holes and hairline cracks are permitted to be stored. This approach assures the structural integrity of the fuel to confine the fuel pellets and its retrievability. In the unlikely event of a breach that required the canister to be unloaded, the canister can be returned to the reactor spent fuel pool. Therefore, it is incorrect to assert that there is no place to unload a canister. The Horizontal Storage Module (HSM) is designed to American Concrete Institute (ACI) 349, which is the required code for nuclear structures made of reinforced concrete. The transfer cask is designed according to the ASME BPVC, Section III, Subsection NC; ANSI-N14.6 for heavy loads; ANSI-50.9 for load

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combinations; and NUREG/CR 1815 for impact testing. Because the cask itself is required to meet such exacting standards of construction, the transport mechanism and the trailer that move the canister into the HSM are not considered to be important to safety. Therefore, the design that meets industry standards is sufficient.

B. A number of commenters raised issues relating to releases of radioactivity from surface contamination and leakage from the casks under normal and accident conditions.

B.1. Comment. One commenter pointed out that the Certificate of Compliance Surveillance Requirement 1.2.12 does not have a section stating the action that is to be taken when the contamination level in the transfer cask exceeds limits after the DSC has been transferred to the concrete HSM.

Response. The Certificate of Compliance Surveillance Requirement in Section 1.2.12 has been modified to clarify that decontamination of the transfer cask is required if the surface contamination limit is exceeded.

B.2. Comment. One commenter, who was concerned with the seismic events at the Davis-Besse Nuclear Power Station, stated that a displacement pulse of 60 cm, as observed in the Lander's quake in the Mojave Desert northeast of Los Angeles, would completely destroy the HSM and allow a substantial release of radioactivity from the fuel within.

Response. The potential for a seismic event is not the same at every reactor site in the United States. For Davis-Besse, the maximum ground displacement has been calculated to be 3.33 inches (8.46 cm), corresponding to a 0.15g maximum ground acceleration. This is substantially less than the displacement observed in the Lander's quake and appears to be well within the design of the Standardized NUHOMS. Each general licensee using the Standardized NUHOMS, including Davis-Besse is required to document their evaluations to determine that the reactor site parameters, including seismic events, envelope the cask design basis, as specified in its SAR and SER.

B.3. Comment. One commenter, citing a Wisconsin Public Service Commission draft environmental impact statement (EIS) for Point Beach, asked for an explanation of why NUHOMS and metal casks have a greater potential to spread contamination than the Pacific Sierra Nuclear Associates ventilated storage cask (VSC) system, VSC-24 cask.

Response. The specific rationale that forms the basis of the statement in the Wisconsin Public Service Commission's draft EIS for Point Beach was not

documented. The decontamination requirements for the two designs are comparable. The VSC-24 DSC is loaded into the ventilated concrete cask (VCC) forming the VSC. The VSC is then transported from inside the reactor auxiliary building to the storage pad. During moving and storage of the VCC, the exterior surface remains clean because it has not been exposed to contamination in the spent fuel pool. The NUHOMS DSC is moved in the transfer cask from the reactor building to the horizontal storage module in the field. Because the transfer cask has been in the spent fuel pool, it may have small amounts of external contamination that have the potential to spread during transit. However, any potential contamination of this type could not be significant. The NRC requires that the limits for surface contamination, workers' dose, and environmental dose must all be met for the operation of the ISFSI, including during any transfer operations. Each 10 CFR Part 50 licensee must have a radiation protection program to monitor operations to ensure that surface contamination and worker and public exposure to radiation are below acceptable levels and as low as is reasonably achievable (ALARA). Past operation of the NUHOMS shows that the doses are well below all NRC limits.

B.4. Comment. One commenter "is concerned that heat generated by fission product decay may provide the driving force, the presence of free moisture in water-logged fuel may, in a non-mechanistic way, provide a transport mechanism for fission product release and the ambient air circulating through the cask concrete structure may provide (an unmonitored) pathway to the biosphere." One commenter remained concerned about the possibility of insufficient drying of the fuel before placement in the DSC. Another commenter, citing the Battelle Pacific Northwest Laboratory Report PNL-5987 on the removal of moisture from degraded fuel during vacuum drying, contends that the mechanism for free moisture and radionuclide release that pertain in normal or upset conditions, such as conditions caused by sabotage, have not been simulated adequately.

Response. The DSC is a closed vessel. There is no path available for release of fission products from inside the DSC to the atmosphere. During normal operation, the circulating air, as it passes through the HSM and around the outside of the DSC to remove the heat, never comes in contact with fission products and therefore, could not remove these products from the cavity of the DSC. Moreover, design basis

accidents under upset conditions were postulated and analyzed in the SAR and SER. These analyses show that the heat generated from fission product decay is not capable of breaching the DSC and could not provide the driving force for a release of radioactivity. Further, it is not expected that any significant amount of moisture will remain in the fuel after it is loaded into the DSC. The fuel is dried after it has been loaded into the DSC and the topcover plate seal welded to the DSC shell. The Certificate of Compliance requires two pump-downs to a vacuum pressure of less than 3 mm Hg each with a holding time of greater than 30 minutes. A stable vacuum pressure of less than 3 mm Hg further assures that all liquid water has evaporated in the DSC cavity.

The safeguards issue of radiological sabotage of storage casks has been reviewed previously and assessed in the 1989 proposed rule to add Subparts K and L to 10 CFR Part 72 (54 FR 19379). The NRC has determined that the Standardized NUHOMS is sufficiently robust such that the effects of a successful attack would have low health consequences and are similar to the results presented in the 1989 proposed rule. (see also response to comment N.1)

C. A number of comments were received that focused on monitoring, surveillance, and inspection activities associated with dry cask storage of spent fuel, particularly as they relate to the Standardized NUHOMS.

C.1. Comment. One commenter stated that there are neither active nor passive systems in place to mitigate barrier breaches, nor are there active radiation monitors that would indicate a breach has occurred. There are no monitored drains and sumps nor are there retention basins. The commenter stated that the cask is insufficient to be relied upon for the health and safety of Ohioans.

Response. The Certificate of Compliance (Section 1.3) for the Standardized NUHOMS includes surveillance and monitoring requirements that are more than sufficient to detect cask degradation in time to ensure that adequate corrective actions can and will be taken. In addition, radiation monitoring and environmental monitoring programs would detect any radiation leak in excess of NRC limits from an NRC-approved cask.

In some instances, the NRC has required continuous monitoring where it is needed to determine when corrective action needs to be taken. Under a general license, to date, the NRC has accepted continuous pressure monitoring of the inert helium

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atmosphere as an indicator of acceptable performance of mechanical closure seals for dry spent fuel storage casks.

However, the NRC does not consider continuous monitoring for the Standardized NUHOMS double-weld seals to be necessary because:

(1) There are no known long-term degradation mechanisms which would cause the seal to fail within the design life of the DSC; and

(2) The possibility of corrosion has been included in the design (see SER Section 3.2.2.5).

These conditions ensure that the internal helium atmosphere will remain stable. Therefore, an individual continuous monitoring device for each HSM is not necessary. However, the NRC considers that other forms of monitoring, including periodic surveillance, inspection and survey requirements, and application of preexisting radiological environmental monitoring programs of 10 CFR Part 50 during the use of the canisters with seal weld closures can adequately satisfy NRC requirements.

With respect to the use of instrumentation and control systems to monitor systems that are important to safety, the user of the Standardized NUHOMS will, as provided in Chapter 14 of the SER and in Section 1.3.2 of the Certificate of Compliance, be required to verify the cask thermal performance on a daily basis by a temperature measurement, to identify conditions that threaten to approach cask design temperature criteria. The cask user will also be required to conduct a daily visual surveillance of the cask air inlets and outlets as required by Chapter 12 of the SER and Section 1.3.1 of the Certificate of Compliance.

While the HSM and DSC are considered components important to safety, they are not considered operating systems in the same sense as spent fuel pool cooling water systems or ventilation systems that may require other instrumentation and control systems to ensure proper functioning. Due to this passive design, temperature monitoring and surveillance activities are appropriate and sufficient to assure adequate protection of the public health and safety for this design.

Because the Standardized NUHOMS DSC is welded closed and has been decontaminated before being placed in a HSM, there is no routine radioactive liquid generation that would require a retention basin or sump. Water entering the storage area has no mechanism of becoming contaminated because the DSC is enclosed within the HSM and is expected to be dried by the heat generated during storage.

C.2. Comment. One commenter expressed concern over the possible external corrosion of the stainless steel DSC because of exposure to water over decades. Another commenter expressed concern about corrosion of stainless steel under conditions of indefinite duration, stating that while stainless steel corrodes less rapidly than carbon steel, even the plumbing fixture industry is finding unexpected stainless steel pitting and corrosion under conditions far less intense than those in a DSC. Another commenter stated that the system is not designed for remote inspection of the DSC for corrosion while it is in the HSM and that the only way to inspect the DSC is to return it to the spent fuel pool. Periodic inspection of the DSC is needed to preclude or identify gradual canister deterioration by unknown mechanisms. Another commenter inquired about a checking system for the NUHOMS in the future. How will corrosion be evaluated on the canister (DSC) and the support rails inside the HSM? Is it possible for them to accumulate moisture and corrode together over possibly many years of storage? What check is required on the possibility that the canister couldn't be removed at the end of cask life?

Response. The DSC is enclosed within the HSM and is not exposed to external water. Laboratory experiments have indicated a general corrosion rate of less than 0.00001 inches per year for similar stainless steels. The NRC believes these experiments more accurately bound DSC corrosion than experiences in unrelated industries. For the 50-year design life of the DSC, the expected corrosion would therefore not result in exceeding a corrosion depth of 0.0005 inches. This will not affect the DSC performing its intended safety functions. Because of the low corrosion rates expected for stainless steel, periodic inspections for deterioration of the DSC are not considered necessary. Therefore, inspections are not required. The support rails for the DSC have an extremely hard-alloy steel applied to the sliding surface, are ground to a smooth finish, and are coated with a dry film lubricant to prevent corrosion and to reduce the coefficient of friction. Furthermore, the environment inside the HSM is protected from rain and it is kept dry by the heat load from the DSC. Therefore, it is highly unlikely that corrosion between the stainless steel and the hard alloy steel surface of the support rail will occur to any significant extent. These conclusions and analyses regarding the very small likelihood of corrosion indicate that there is reasonable assurance that the DSC can

be removed from the HSM when required.

C.3. Comment. One commenter questioned whether the screens between the casks, which are essential to cooling, will remain clear of debris and how they can be cleaned if they become partially clogged. Another commenter was concerned about how the roof screen was inspected, stating that it seems likely that insects, animals, and birds will be attracted to the warm air coming from the outlet vents. Several commenters remained concerned about vent blockage that can completely cover and block screening and vents particularly from insects such as paper wasps, that build huge nests, and swarms of midges that are common to the Great Lakes. How are the screens attached?

Response. As stated in the Certificate of Compliance, a licensee using the Standardized NUHOMS must conduct a daily visual surveillance of the exterior of air inlets and outlets (front wall and roof bird screen). In addition, the licensee must perform a daily close-up inspection to ensure that no material accumulates between the modules to block the air flow. If the surveillance shows blockage of air vents, the licensee is required to clear the vent blockage by following procedures developed by each user of the Standardized NUHOMS. If the screen is damaged, the licensee must replace the screen. The required daily surveillance and temperature measurements should readily detect blockage of the vents or screens by insects, animals, or birds in a timely manner, leading to the removal of the obstruction before damage occurs from high temperatures. The bird screen is made of stainless steel wire cloth tack-welded to stainless steel strips, which are attached to the HSM with stainless steel wedge anchors.

C.4. Comment. One commenter expressed concern about the presence of burrowing and other nuisance animals that have posed problems at other waste sites.

Response. Burrowing and other nuisance animals are not expected to pose problems for the Standardized NUHOMS. Because of the robust system design, animals will not be able to get to the radioactive material or cause damage such that water could cause movement of the radioactive material. Burrowing under the concrete pad would not cause damage to safety-related components. Further, large-scale burrowing would likely be detected by the daily surveillance or other activities related to the operation of the storage area.

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C.5. Comment. One commenter wanted additional radiation monitoring because of the calculated higher dose rates over previous NUHOMS designs. The commenter stated that these higher dose rates are not consistent with the objective of maintaining occupational exposures ALARA, and that site-specific applications should provide detailed procedures and plans to meet ALARA guidelines and 10 CFR Part 20 requirements with respect to operation and maintenance.

Response. No additional radiation monitoring has been specifically identified or required for the Standardized NUHOMS. However, 10 CFR Parts 20, 50, and 72 require that licensees comply with ALARA. In addition, 10 CFR 72.212(b)(6) requires each licensee to review its radiation protection program to determine that their effectiveness is not decreased by use of the Standardized NUHOMS. Further, 10 CFR 72.212(b)(9) requires each licensee to conduct storage activities in accordance with appropriate written procedures. If the results of these licensee activities indicate that additional procedures are required then the licensee is required to implement the procedures.

C.6. Comment. One commenter was concerned about the optical survey equipment used to align the transfer cask with the HSM before transfer. What checks are made on this optical equipment and what regulations apply?

Response. The optical equipment used to align the transfer cask with the HSM is optional and is an operational convenience. However, the licensee must meet Technical Specifications 1.2.9 in the Certificate of Compliance. Therefore, only appropriate calibrations or checks to assure compliance with this technical specification are appropriate.

C.7. Comment. One commenter wants to know who evaluates the insertion or retrieval of the DSC for excessive vibration and what is the result of excessive vibration. Would this allow crud to be released?

Response. The NRC Certificate of Compliance, Section 1.2.9 provides that the cask user observe the transfer system during DSC insertion or retrieval to ensure that motion or excessive vibration does not occur. It also prescribes certain follow-up actions to be taken by the cask user in the event that alignment tolerances are exceeded and excessive vibration occurs. It is possible that excessive vibration could dislodge crud. However, the crud would be contained within the DSC and would not be released to the atmosphere because the DSC is a sealed vessel. Any opening of the DSC will be under

controlled conditions that should safely contain the crud and prevent its release to the environment.

C.8. Comment. Several commenters wanted the NRC to set definite methods for the required surveillance and monitoring of NUHOMS, including the daily temperature measurements, so that data are uniform and standardized for future reference on different modules at different reactor locations.

Response. The NRC Certificate of Compliance for the Standardized NUHOMS has required temperature measurements. However, the licensee or vendor has latitude in determining how the performance-based temperature requirements will be met. The NRC is not convinced that the possible benefits of a uniform, but prescriptive, surveillance and monitoring system or technique would outweigh the costs of curtailing the freedom of cask users to design an implementation scheme suited to their individual needs. The collection of uniform data for possible future use, but without a specific regulatory need could lead to additional exposure to workers; or adversely affect safety without any offsetting benefit.

C.9. Comment. One commenter asked about the design life of this NUHOMS module and on how this is documented. Will the canister be removed from the concrete module at a specific time and be opened?

Response. The design life of the Standardized NUHOMS is 50 years as described in the SAR. The Certificate of Compliance has a 20-year approval period that can be renewed by NRC for another 20 years following a safety reevaluation. It is expected, that at the end of operation, the canister will be removed from the concrete module and will be opened in the spent fuel pool facility or an adequate dry environment alternative. The fuel will be transferred to an NRC-approved shipping cask for off-site transportation and ultimate disposal by the DOE.

C.10. Comment. One commenter believed it prudent to monitor temperature and air flow to ensure that temperature excursions are not experienced.

Response. NRC believes the required temperature measurement stated in Specification 1.3.2 of the Certificate of Compliance, plus the daily visual inspection of HSM air inlets and outlets, are adequate to ensure that temperature excursions exceeding the design basis are not experienced and to determine when corrective action needs to be taken to maintain safe storage conditions. Therefore, air flow measurements are not required to assure safety.

D. A number of commenters raised technical issues related to the thermal analysis of the Standardized NUHOMS and thermal performance of the system under normal, off-normal, and accident conditions.

D.1. Comment. Several commenters wanted, in the interest of ALARA principles, the capacity for approximately 24 kW heat removal to be verified by using an artificial heat load. One commenter suggested that the NUHOMS be tested with a full heat load at a testing site such as Idaho National Engineering Laboratory (INEL), and not at each reactor site that may load it with a higher heat generation rate fuel. Another commenter cited the ALARA philosophy of loading the oldest fuel first even though design basis fuel is on site. Several commenters wanted deletion of the requirement (a literal interpretation of draft Certificate of Compliance) to calculate the temperature rise for each HSM loaded with canisters producing less than the design limit of 24 kW for the following reasons:

(1) Users are not normally provided the vendor's analytical models for this calculation,

(2) The 100 °F rise calculated for the design basis maximum heat load ensures that all safety limits are met for concrete and fuel,

(3) Because 24 kW is the limit, virtually all the HSMs will be affected, which places an undue burden on the user to "baseline" the predicted delta-T by calculation considering the inherent safety margins of the system, and

(4) Technical Specification 1.3.1 ensures that air flow is not blocked so a false measurement of low temperature rise cannot occur.

Response. A licensee is not required by NRC to load the oldest fuel first but, in the interest of ALARA, it may do so. However, each time hotter fuel is loaded up to the maximum allowed in a DSC, the licensee would need to verify the heat removal performance of the system. For fuel producing less heat than the design limits of the system, the heat removal capacity of the system determined by calculation must be verified by temperature measurements. This process must be repeated each time a DSC is loaded with hotter fuel until the maximum-system designed heat load is reached. When loaded with spent fuel producing 24 kW heat, the system may not have an ambient and vent outlet temperature difference of more than 100 °F for fuel cooled equal to or more than 5 years. This verification process is required to confirm that the as-built system of each licensee is performing as designed. A

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licensee could use an artificial heat source to test an initial cask at a bounding heat load of 24 kW before loading fuel. However, this test would only verify the spent fuel heat removal capacity of the system. It would not verify as-built performance. Experience has shown that adequate verification testing can be performed at the reactor site. Therefore, performing the verification at a testing site like INEL would not provide additional safety margins.

D.2. Comment. Several commenters pointed out possible conflicting statements about temperature measurements in the surveillance requirements. In discussions about the heat removal capacity test, temperatures are determined only during the test period. Daily temperature measurements on each HSM are required to verify thermal performance.

Response. These two temperature measurement programs have different objectives. Temperature measurements by licensees to verify the heat capacity calculations need only be done until equilibrium is reached. The daily temperature measurements by licensees are intended to demonstrate continued safe operation within specified limits over the life of the HSM and may not be the same type of measurement done in the initial period to verify heat removal capacity.

D.3. Comment. One commenter was concerned about the adequacy of cooling under all atmospheric conditions in the country. The commenter cited conditions such as humidity over 90 percent, temperature over 100 °F, and no wind.

Response. Regulatory requirements for general licensee users of dry storage casks are contained in 10 CFR 72.212(b). Each user must verify that the following conditions are not exceeded at their reactor site for the Standardized NUHOMS: the maximum average yearly temperature with solar incidence is 70 °F; the average daily temperature is 100 °F; and the maximum temperature is 125 °F with incident solar radiation. If the power reactor site high temperature parameters fall within these criteria, the Standardized NUHOMS can be safely used at the site.

D.4. Comment. One commenter wants the NRC to establish procedures to measure temperature performance, especially the thermal performance of an individual module and not the combined performance of adjacent modules as stated on page A-23 of the draft Certificate of Compliance.

Response. As required by the regulations, the licensees are required to develop detailed procedures. NRC in its

regulatory oversight role has the opportunity to review the adequacy of the procedures. The requirement cited by the commenter is a requirement for the licensee to verify a temperature measurement of the thermal performance for each HSM, not the combined performance of adjacent modules. A cautionary statement is included in the basis of the specification to ensure that licensee measurements of air temperatures reflect only the thermal performance of an individual module and not the combined performance of adjacent modules.

D.5. Comment. One commenter wanted to know how the temperature differences in the roof, side wall, and floor areas are incorporated into the daily temperature measurement.

Response. For the first HSM to be emplaced, the user is required to measure the air inlet and air outlet temperature difference of the system at equilibrium. This measurement is to ensure that the heat capacity of the system will not be exceeded and that the concrete temperature criteria will not be exceeded. For the Standardized NUHOMS, this maximum heat capacity is 24 kW. The 24 kW heat load is the design maximum and is the basis for the thermal hydraulic calculations for the cask. The temperature distribution for various parts of the HSM have been calculated (i.e., the roof, walls, and floor) by the cask vendor. Temperature differences causing thermal stresses in the concrete were evaluated and are duly reported in both the SAR and SER. These calculations were reviewed by NRC as a part of the overall process for this design approval.

D.6. Comment. One commenter stated that daily temperature measurements are not necessary to ensure convective air flow, given the requirement to verify that the inlets and outlets are not obstructed. Site-specific NUHOMS require temperature measurements when the DSC is placed into the HSM, 24 hours later, and again at 1 week after loading to ensure adequate thermal performance.

Response. The NRC disagrees with this comment. The HSM and DSC are considered components important to safety in the Standardized NUHOMS. Daily temperature measurements of the thermal performance by the licensee are required to provide additional assurance that thermal limits are not exceeded under the general license. This requirement was imposed on the first cask of this type approved by the NRC and listed in 10 CFR 72.214 for use by a general licensee, the VSC-24 cask (58 FR 17967; April 7, 1994) and is now applied to the Standardized NUHOMS.

E. A number of commenters expressed concern about emergency planning and response contingencies.

E.1. Comment. Several commenters expressed concern that in the event of problems and the need to off-load fuel (as in the recent situation at Palisades), a transfer cask may not be available in a timely manner because of inclement weather or because the transfer cask itself has experienced problems or is being used elsewhere. One commenter expressed concern at having to have a transfer cask on site within 40 hours of vent blockage to prevent concrete damage. If the transfer cask is leased from VECTRA and is not at the licensee's site, who is liable if something happens that would require the use of a transfer cask?

Response. The NRC has analyzed all design basis accidents from the operation of an ISFSI and concluded that there will be no release of radioactive material to the environment. The 40-hour limit on vent blockage is intended to prevent concrete degradation that might occur over a long period of storage. A vent blockage accident would not result in the release of radioactive material because the DSC would not be breached. Therefore, the NRC believes that the potential risk to the public health and safety is extremely small during the time needed to obtain the use of a transfer cask. Thus, there is no requirement that a transfer cask be at an ISFSI site all the time.

E.2. Comment. One commenter expressed concern that the effects of tornado winds and missiles during movement of the fuel in a transfer cask or in a storage cask on a transporter were not analyzed.

Response. Both the vendor's SAR and NRC staff's SER address the effects of tornado winds and missiles during movement of the transfer cask with a loaded canister. These analyses show that, for tornado winds, there is a safety factor of 1.5 against overturning when subjected to Design Basis Tornado winds (a safety factor greater than 1 will generally be adequate for public protection). The transfer cask stability, tornado missile penetration resistance, and shell and end plate stresses were calculated and shown to be below the allowable stresses for ASME BPVC Service Level D (accident) stresses.

E.3. Comment. One commenter described an October 1972 storm that flooded the entire Davis-Besse plant site, including the (pre-operational) reactor building. There has been subsequent flooding of the site, particularly during spring thaws.

Response. Safety analyses by NRC and the cask vendor show the Standardized

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NUHOMS can withstand floods and will continue to perform acceptably. With regard to the Davis-Besse site, the licensee changed site topography during plant construction. Specifically, the area was built up and some dikes were added. The plant structure's ground floor elevation is 585 feet International Great Lakes Datum (IGLD), which is also the elevation of the pad. The licensing design basis for maximum probable static water level on the site is 583.7 feet IGLD. As noted, the HSM and DSC were evaluated for flood conditions as required by 10 CFR 72.122(b). The HSM can withstand a maximum water velocity of 15 feet per second and a static head of 50 feet of water. The DSC can withstand a static head of 50 feet of water. Any site that intends to use a Standardized NUHOMS design must evaluate the conditions at their site to verify compatibility with the design specifications of the system.

F. A number of commenters raised issues relating to the design, evaluation, and operation of the Standardized NUHOMS.

F.1 *Comment.* Several comments related to the fuel to be stored in the Standardized NUHOMS. One commenter wanted control components contained in assemblies addressed in the SAR and SER citing DOE acceptance criteria. One commenter questioned how 55,000 MWD/MTU burnup fuel now being used in pressurized water reactors will be handled since the Standardized NUHOMS-24 is rated to handle only 40,000 MWD/MTU burnup fuel. Another commenter, citing provisions of current site-specific licenses for other NUHOMS designs, stated that higher burnup should be allowed if the decay heat and radiological source terms are within limits. Another commenter asserted that increased fission products from higher enriched fuel may potentially increase embrittlement of the fuel cladding and that this needs to be evaluated in the SER. This commenter further alleged that this would increase the probability of more defective fuel being loaded into dry casks.

Response. The vendor designed the cask system for storage of pressurized water or boiling water reactor fuel assemblies meeting certain specifications. By limiting the use of the cask system to assemblies meeting these specifications, the vendor made a decision that may partially restrict the use of the cask. However, the NRC does not require that a cask be universal for all types of fuel or be usable at every reactor site. For example, none of the casks previously listed in 10 CFR 72.214

is usable for boiling water reactor spent fuel.

Currently, the 55,000 MWD/MTU burnup fuel and fuel with initial enrichments of greater than 4% will have to remain in the spent fuel pool because dry spent fuel cask designs to store fuel with this higher burnup and initial enrichment or related to DOE acceptance criteria have not yet been reviewed and evaluated by the NRC.

F.2 *Comment.* Several comments were related to criticality safety analysis. One commenter questioned the conservatism of using 7.5-year cooled spent fuel when 5-year-cooled fuel is the minimum specified and when older fuel may also be stored in the cask. Another inquired about criticality safety if the original basket geometry were compromised, as might be the case for brittle failure of a spacer disk. In the compromised basket geometry case, the commenter also asked about the difference in criticality safety for a helium atmosphere rather than a borated water medium. The commenter, referring to July 24, 1992, meeting minutes, inquired why all parties agreed not to spend any resources to make these criticality safety calculations.

Response. The Standardized NUHOMS nuclear criticality safety analysis is based on the following: (1) Babcock and Wilcox 15 x 15/208 pin fuel assemblies with initial enrichments up to 4.0 wt% of U-235 and (2) General Electric 7 x 7 fuel assemblies with initial enrichments up to 4.0 wt% of U-235, for the Standardized NUHOMS-24P and NUHOMS-52B designs respectively. The age of the fuel that will actually be stored is not relevant in criticality safety analysis because the analysis assumes storage of unirradiated fresh fuel that is more reactive than cooled spent fuel. The Standardized NUHOMS-24P system has administrative controls that limit the irradiated fuel reactivity to less than or equal to 1.45 wt% of U-235 equivalent unirradiated fuel (Certificate of Compliance Section 1.2.1).

The possibility of a criticality accident caused by the brittle failure of the basket should not be a significant concern. No lifting or handling of the DSC outside the spent fuel pool building is permitted if the basket temperature is lower than 0°F. If the user does not determine the actual basket temperature, the ambient temperature must be used conservatively. Under these temperature restrictions, the basket materials will not behave in a brittle fashion. Consequently, the basket geometry would not be compromised by brittle failure. As for the criticality safety

consideration related to a helium atmosphere versus a borated water medium, the k_{eff} of the fuel in a helium atmosphere is much less than the k_{eff} in borated water. Therefore, criticality calculations for the borated water are sufficient because they are more conservative and therefore would bound calculations using a helium atmosphere.

F.3 *Comment.* Two commenters were concerned with shielding and dose assessments for the Standardized NUHOMS. One commenter believed that using 10-year-cooled fuel for the dose assessment was nonconservative when 5-year-cooled fuel is needed to load the DSC to produce 24 kW of heat. Another, referring to an NRC meeting with Pacific Nuclear Fuel Services, Inc. (PNFSI), wanted clarification of an NRC request to delete a clause allowing the utility to perform site-specific shielding calculations.

Response. The cask vendor presented dose assessment results in the SAR for both 5- and 10-year-cooled fuel. However, for this rulemaking, NRC used the dose assessment for 5-year-cooled fuel for the shielding analysis radiation source term and for accidental releases of radionuclide material. NRC's use of the 5-year-cooled fuel assessment is conservative and bounding.

To ensure safe storage of spent nuclear fuel in NRC-approved casks, the NRC specifies, in Section 1.2.1 of the Certificate of Compliance a number of fuel acceptance parameters. These parameters, which may include burnup, initial enrichment, heat load, cooling time, and radiological source term, define the properties of those assemblies that can be stored in a cask. One such parameter of interest for the Standardized NUHOMS is the radiological source term that forms the basis of the shielding analyses. For this parameter, the vendor proposed an alternative approach. Specifically, for fuel assemblies that fall outside the specified source term parameters but satisfy all other parameters, the vendor proposed to allow licensees to do individual cask shielding calculations to show compliance with the design basis dose rates. This could result in more assemblies in a licensee's inventory that would be eligible for dry storage. In the instance noted in the comment, the NRC did not agree with the vendor proposal. The Certificate of Compliance dose rate specifications provide a simple check to ensure that DSCs are not inadvertently loaded with the wrong fuel. The dose rate specifications are based on the shielding analyses provided by the vendor in its SAR. Because of differences in non-fuel components in the ends of some assemblies, dose rates

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higher than those evaluated by NRC in the SER may occur at the ends of casks than were assumed in the shielding analysis. The Certificate of Compliance specifications allow for this possibility and permit the licensee to store such fuel provided the licensee verifies proper cask fabrication, conformance with all other fuel parameters, and compliance with radiation protection requirements. The site-specific calculations referred to in the comment are not shielding calculations, but rather are the licensee's written evaluations (or dose assessments) required by 10 CFR 72.212(b)(2)(iii) to establish that the radiation criteria for ISFSI in 10 CFR 72.104 have been met. The Certificate of Compliance also requires that the licensee submit a letter report to the NRC summarizing its actions in this type of case.

F.4. Comment Several commenters were concerned with fuel clad integrity issues. Particularly, they were concerned with potential problems that may arise because of differences between vertical and horizontal storage. One commenter noted that it was essential to inspect the cladding carefully for the minute hairline cracks which would allow the radioactivity inside to escape. Another commenter wanted it made clear that for fuel to be eligible for storage it doesn't need to be specifically inspected nor require special handling or storage provisions within the spent fuel pool. The commenter also asserted that pinhole leaks in fuel rod cladding do not constitute gross breaches. The commenter wanted fuel cladding integrity clarified. Another commenter claimed that horizontal storage of fuel rods will lead to cladding deterioration that would challenge the technical specifications of the NUHOMS cask. Another commenter was concerned about the possibility of fuel rod bowing that could result in weighted contact between the fuel cladding/crud and the DSC guide sleeve, with the potential for eventual bonding of the materials over the duration of the storage period. One commenter, noting that some of the fuel in the spent fuel pools could be nearly 20 years old, was concerned that the fuel will not be tested for leaks using specific techniques such as penetrating dyes, eddy current, sipping, or ultrasound before canister loading. A commenter wanted all fuel with known defects and all water-logged fuel retained in the spent fuel pool until the cask integrity under operating conditions is fully demonstrated. Another wanted to know how "grossly

breached" fuel will be ultimately handled and shipped off site.

Response. In the Standardized NUHOMS, PWR fuel rods are stored in a horizontal orientation and do not normally deflect in the middle of any span so that the rods contact the DSC guide sleeve. However, the possibility exists that a bowed rod may come in contact with the guide sleeve.

With respect to storage of BWR fuel, the fuel channel that surrounds the fuel bundle (rods) provides a barrier to separate coolant flow paths, to guide the control rod, and to provide rigidity and protection for the fuel bundle during handling. Therefore, the BWR fuel rods inside the channel do not come in contact with the guide sleeves. Even if there were contact with either PWR or BWR fuel rods, the interaction would not present a significant concern because the guide sleeve material is stainless steel, which has a very low rate of corrosion, and the DSC cavity is evacuated and back-filled with inert helium, which further reduces the likelihood of any corrosion or bonding involving the guide sleeve and fuel rods.

The Certificate of Compliance requires that the fuel have no known or suspected gross cladding breaches to ensure the structural integrity of the fuel. Known or suspected failed fuel assemblies (rods) and fuel with cladding defects greater than pin holes and hairline cracks are not authorized in the Standardized NUHOMS. Fuel meeting this specification will be safely stored and will remain intact in storage because the dry inert atmosphere and relatively low temperature will prevent deterioration of the cladding. Grossly breached fuel will be handled in site-specific license applications.

F.5 Comment Quite a few comments related to the structural stability of the HSM, particularly its response to earthquakes. Commenters questioned the possibility of vertical storage of the Standardized NUHOMS and suggested that it would be very difficult to restrain the HSM if the DSC were in a vertical position. One commenter wanted dry storage casks constructed to Building Officials Code Administrators (BOCA) National Building Code (and Ohio Administrative Code) for structures in use group H-4, high-hazard use, which includes radioactive materials. Commenters questioned whether ground acceleration as used by the NRC in its evaluation could adequately describe all potential earthquakes east of the Rocky Mountain Front and suggested that a ground acceleration of 2.5g would not be realistic for all sites, despite proximity to fault lines. Another commenter alleged a number of seismic

events in the midwest which had some effect in the Ohio area could cause a complete failure of the cask and requested that the NRC insist that the cask, containment structure, and foundation pad be designed to substantially exceed all earthquakes with a potential for 0.60g. One commenter wanted to know if the module had been analyzed for earthquake events at all United States reactor sites, according to Laurand Findmun Seismic Hazard Curves. Other commenters expressed various concerns about the integrity and reaction of the Standardized NUHOMS components under earthquake conditions and asked the following questions:

Could the casks crash against each other as the ground moves beneath them?

Could the module shift, crack, or move off the pad?

How are the rail support holdings evaluated?

Could the DSC be knocked off the rails? and

Could the module roof crack and fall on the canister?

Response. The Standardized NUHOMS design described in the vendor's applications for approval and the SAR does not address vertical storage. Consequently, NRC neither evaluated nor approved vertical storage for the system. Therefore, it may not be stored vertically.

The NRC reviewed the Standardized NUHOMS for compliance with design criteria that are more stringent than those of the BOCA National Building Code (NBC) (see response to Comment A.5). These more stringent criteria are included in national standards that more closely represent the use of the Standardized NUHOMS.

Part 72 specifies a design basis maximum ground acceleration of 0.25g for areas east of the Rocky Mountain Front that are not in areas of known seismic activity. All HSMs and DSCs are designed to withstand a 0.25g earthquake. Any reactor licensee who intends to use the Standardized NUHOMS must verify that the maximum displacements at the cask's location on the reactor site are within the design criteria for the system. The Standardized NUHOMS is free standing and not dependent on the pad for safety. Failure of the pad caused by seismic events will not cause the Standardized NUHOMS to fail. Therefore, cask safety does not require the pad to be designed to withstand a seismic event.

F.6. Comment. One commenter stated that the SAR did not include consideration of the accident events such as: aircraft crashes, turbine

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missiles, external fires, explosions, and sabotage.

Response. Before using the Standardized NUHOMS, the general licensee must evaluate them to ensure the site is encompassed by the design bases of the approved cask. The events listed in the comment are among the site-specific considerations that must be evaluated.

The site evaluation for a nuclear plant considers the effects of nearby transportation and military activities. It is incumbent upon the user of the cask to determine if the SER for the facility encompasses the design basis analysis performed for the Standardized NUHOMS or any certified cask. The great majority of the aircraft are single-engine propeller airplanes which typically weigh on the order of 1,500 to 2,000 pounds. The cask's inherent design will withstand tornado missiles and other design loads and also provides protection from the collision forces imposed by these light general aviation aircraft without adverse consequences. NUREG-800, Section 3.5.1.6 "Standard Review Plan for Light Water Reactors," contains methods and acceptance criteria for determining if the probability of an accident involving larger aircraft (both Military and civilian) exceeds the acceptable criterion. It is incumbent upon the licensee to determine whether or not the reactor site parameters are enveloped by the cask design basis as required by 10 CFR 72.212(b)(3). These would include an evaluation demonstrating that the requirements of 10 CFR 72.106 have been met.

Turbine missile analyses typically show a very low probability of a turbine missile breaking the turbine casing. The site's turbine missile analyses must be considered as part of the facility's analysis of the suitability of the storage location. External fires are handled by established fire control programs. Explosions are prevented by control of combustibles under the licensee's fire protection program. Sabotage is considered under the criteria for security programs that each licensee must implement. (See also response to comment N.1).

F.7 Comment Several commenters raised issues about the pad and foundation for the Standardized NUHOMS. One commenter referred to a previous rulemaking that stated that the NUHOMS casks required site-specific approvals because they are constructed in place. Other commenters, concerned with seismic events at the Davis-Besse Nuclear Power Station and soil stability issues similar to cask use at the Palisades Plant, asserted that there was

a necessary relationship of the Standardized NUHOMS cask or module to the pad at a specific site and that evaluation of it could not be based on the reactor site seismic analysis. Each site required singular seismic and soil analysis for dynamic loads and not just static loads.

Response. The NUHOMS design referred to in the July 18, 1990, 55 FR 29181, rulemaking includes the site-specific pad as an integral part of the concrete HSM and therefore it is important to safety. The Standardized NUHOMS considered in this rulemaking have the HSMs as free-standing units; that is, they have no structural connections to the pad. The Standardized NUHOMS does not rely on the pad to perform a safety function to protect public health and safety. The vendor analyzed the HSM containing the DSC for peak ground accelerations of 0.25g caused by earthquakes and found that it would neither slide nor overturn. NRC evaluated the Standardized NUHOMS under a wide range of site conditions that could diminish cask safety. Further, under the NRC general license, before using the Standardized NUHOMS a licensee must verify that reactor site parameters are within the envelope of conditions reviewed by NRC for the cask approval. If potential conditions exist at the reactor site (including potential erosion, soil instability, or earthquakes) that could unacceptably diminish cask safety by any credible means, the licensee's analysis must include an evaluation of the potential conditions to verify that impairment of cask safety is highly unlikely.

The NRC's regulations do not explicitly require a licensee using a cask under a general license to evaluate the cask storage pad and foundation under such site conditions for erosion or earthquakes. If conditions at the reactor site could unacceptably diminish cask safety by affecting the stability of the supporting foundation so as to put the cask in an unsafe condition, the cask may not be used unless the foundation is appropriately modified or a suitable location at the reactor site is found. Implicitly, therefore, the pad and the underlying foundation materials must be analyzed under site conditions that include erosion, soil instability, and earthquakes, even though the pad has no direct safety function and the cask is designed to retain its integrity even assuming the occurrence of a range of site conditions.

The licensee has the responsibility under the general license to evaluate the match between reactor site parameters and the range of site conditions (i.e. the

envelope) reviewed by NRC for an approved cask. Typically, the licensee will have a substantial amount of information already assembled in the Final Safety Analysis Report (FSAR) for the nuclear reactor. In addition, the envelope for the approved cask is identified in the NRC SER and Certificate of Compliance and in the cask vendor's SAR for the cask. Of course, the licensee should consider whether the envelope evaluated by NRC adequately encompasses the actual location of the cask at the reactor site. The licensee should also consider whether there are any site conditions associated with the actual cask location that could affect cask design and that were not evaluated in the NRC safety evaluation for the cask.

The vendor analyzed the DSC and the HSM for rigid body response (i.e., sliding and overturning) to seismic accelerations. The resultant peak horizontal ground acceleration is 0.37g and the peak vertical acceleration is 0.17g. The margin of safety against sliding is 1.35. Similarly, the design seismic force will not cause the HSM to tip over because the stabilizing moment of the HSM is greater than the seismic overturning moment. The margin of safety against overturning is 1.26. Thus, no sliding or overturning of the HSM or DSC will occur from the design earthquake.

Because the pad is not considered a safety-related item, a specific pad design is not being approved in this rulemaking for the Standardized NUHOMS.

F.8. Comment. A few commenters had questions pertaining to the operation of and procedures for the Standardized NUHOMS. One commenter inquired whether just one module of the Standardized NUHOMS could be purchased by a utility, or whatever number of modules desired could be procured and easily added like singular casks. One commenter expressed concern about snow removal procedures to prevent blockage of the bottom vents by drifting snow. Another commenter wanted NRC to establish a procedure and criteria for dose rates discussed on pages A-15 and A-16 in the draft Certificate of Compliance. Several commenters noted that a procedure for opening a storage cask and removing the fuel has not been tried before nor documented in the rulemaking. They were also concerned that unloading of a cask would place workers at higher risk.

Response. The NRC Certificate of Compliance does not permit or limit the number of NUHOMS modules that may be purchased by a general license. The NRC does not regulate the commercial arrangements between the cask vendor

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and the users including any provisions on the number of casks that can be purchased or added to the Standardized NUHOMS.

Under the Certificate of Compliance, Section 1.3, the user of the Standardized NUHOMS (general licensee) is required to conduct a visual surveillance of the exterior of air inlets and outlets. If the surveillance shows blockage of air vents, they must be cleaned in accordance with proper procedures. These procedures will minimize the potential impact to the health and safety of workers. The daily temperature measurements indicate proper thermal performance.

The Certificate of Compliance requires each licensee to develop procedures to implement the dose criteria prescribed on pages A-15 and A-16. On page A-15 of the Certificate of Compliance, Section 1.26, the dose rate criteria to be met is equal to or less than: (a) 200 mrem/hr. at the top shield plug surface at centerline with water in the cavity; and (b) 400 mrem/hr. at the top cover plate surface at centerline without water in the cavity. On page A-16 of the Certificate of Compliance the dose rate criteria is less than or equal to: (a) 400 mrem/hr. at 3 feet from the HSM surface; (b) 100 mrem/hr. outside of the HSM door on center line of the DSC; and (c) 20 mrem/hr. at the end shield wall exterior. Each licensee is required to develop its own procedures to implement these criteria. In addition, each licensee must develop operational procedures for the ISFSI for workers' radiation exposure to be ALARA.

For the Standardized NUHOMS, removal of spent fuel from the DSC is addressed in Chapter 5 of the SAR and in Chapter 11 of the SER. The process is essentially the reverse of loading operations and would be performed under the reactor license radiation protection program. The Certificate of Compliance requires each user to develop written procedures for these operations and includes precautions to be considered for unloading. ALARA is required to be addressed by 10 CFR Part 20. Specification 1.1.6 of the Certificate of Compliance requires that pre-operational testing and training exercises include the opening of a DSC and returning the DSC and transfer cask to the spent fuel pool. The Certificate of Compliance also requires the training program to include off-normal events.

F.9. Comment. One commenter, citing the May 1993 study prepared for the NRC by the Center for Nuclear Waste Regulatory Analyses of San Antonio, Texas, questioned the relatively higher temperature consequences of dry storage on fuel cladding. The report states that,

"the dry environment has the potential of producing such problems as further fuel cladding oxidation, increased cladding stresses, and creep deformation as a result of rod internal pressure * * *. These possible spent fuel and cladding alteration modes could be quite accelerated under dry storage conditions, since temperatures are much higher than in wet storage." The commenter does not believe that NRC is fulfilling its obligation in 10 CFR 72.122(h) to see that "spent fuel cladding must be protected during storage against degradation that leads to gross rupture."

Response. The May 1993 study addresses the long-term geological disposal of high-level waste (spent fuel) and is not directed to the short-term interim storage of spent fuel at nuclear power plants. The report evaluates processes over 10,000 years of repository performance for geological disposal. The conclusions of the report are not applicable for the interim storage period of a 20-year cask certificate during which spent fuels stored in the DSC have to meet the NRC's criteria to ensure that cladding is protected. Under normal operation of the ISFSI, leakage of radionuclides is not expected to occur. The design and the double-seal welding of the DSC covers are checked and tested to provide structural integrity throughout the approved storage period. During normal storage conditions, the licensee is required to conduct a radiation monitoring program to ensure protection of workers and the safety of the general public.

G. A number of comments were related to broad policy and program issues in connection with the storage and disposal of high-level radioactive waste, including the DOE repository program. Some commenters questioned the use of dry cask storage and technology in general. Some commenters stated that only dry storage casks that would be compatible with DOE interim or final repository operations, including transportation should be approved for use under a general license.

G.1. Comment. One commenter does not want any more casks approved until a permanent Federal repository is opened. The wet fuel pool is a proven technology that has been successful in containing radioactivity. Another commenter stated that dry storage is dangerous.

Response. The NRC, in implementing the Nuclear Waste Policy Act of 1982, has an obligation to review dry storage technologies and to determine whether to approve the use of these technologies for the storage of spent fuel if they meet

applicable safety requirements. The July 18, 1990, 55 FR 29181, rulemaking found that spent fuel stored in dry storage casks designed to meet the NRC regulatory requirements can safely contain radioactivity. This rulemaking adds one cask design that meets the safety requirements previously developed to the list of approved casks. The previous responses to comments, as well as the detailed safety and environmental analyses underlying this rulemaking (and described elsewhere in this notice), all reveal that the Standardized NUHOMS will conform to the NRC requirements and that its use should not pose the potential for significant environmental impacts.

DOE is required by the Nuclear Waste Policy Act of 1982 to accept spent fuel for ultimate disposal. Moreover, the Commission made a generic determination in its waste Compliance Decisions (September 18, 1990, 55 FR 38474 and August 31, 1994, 49 FR 34658) that safe disposal is technically feasible and will be available within the first quarter of the 21st century.

Dry cask storage has significant advantages over wet storage in that the system is passive and requires minimal human intervention. No pumps, filters, or water quality monitoring are needed to maintain the conditions necessary for wet storage. The only monitoring required for the Standardized NUHOMS is daily temperature monitoring and visually checking inlet and outlet vents.

G.2. Comment. A number of commenters wanted a full formal trial-type public hearing on the use of the NUHOMS cask.

Response. Consistent with the applicable procedure, the NRC does not intend to hold formal trial-type public hearings on the Standardized NUHOMS rule or separate hearings at each reactor site before the use of the dry cask technology approved by the Commission in this rulemaking. Rulemaking procedures, used by the NRC for generic approval of the Standardized NUHOMS, including the underlying NRC staff technical reviews and the opportunity for public input, are more than adequate to obtain public input and assure protection of the public health and safety and the environment. In this rulemaking, the NRC has taken additional steps to elicit and fully consider public comments on the Standardized NUHOMS technology. These steps included NRC participation in public meetings near Davis-Besse and extension of the public comment period by 45 days in response to public requests. This extension provided a total public comment period of almost 4 months.

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Section 133 of the Nuclear Waste Policy Act of 1982 authorizes the NRC to approve spent fuel storage technologies by rulemaking. When it adopted the generic process in 1990 for the review and approval of dry cask storage technologies, the Commission stated that "casks * * * [are to] be approved by rulemaking and any safety issues that are connected with the casks are properly addressed in that rulemaking rather than in a hearing procedure" (July 18, 1990; 55 FR 29181). Rulemaking under NRC rules of practice, described in 10 CFR 2.804 and 2.805, provides full opportunity for expression of public views but does not use formal trial-type hearings of the kind requested by commenters.

In this proceeding, rulemaking clearly provided adequate avenues for members of the public to provide their views regarding NRC's proposed approval of the Standardized NUHOMS, including the opportunity to participate through the submission of statements, information, data, opinions and arguments. In this connection, technical evaluations for Standardized NUHOMS and detailed documented findings of compliance with NRC safety, security, and environmental requirements were prepared by the NRC staff for public examination. In November 1993, the NRC staff reviewed the Standardized NUHOMS and approved the design for the purpose of initiating this rulemaking to grant a generic approval of the design. In addition, the NRC staff conducted a second review in response to the public comments on the Standardized NUHOMS in this rulemaking, again finding compliance with NRC requirements as discussed in this document.

In addition to reviewing systematically and in depth the technical issues important to protecting public health and safety, and the environment, the NRC has taken extra steps to obtain and fully consider public views on the Standardized NUHOMS technology and has made every effort to respond to public concerns and questions about the Standardized NUHOMS compliance with NRC safety, security, and environmental requirements. The initial public comment period opened on June 2, 1994, and was scheduled to close on August 16, 1994. On August 29, 1994, the public comment period was extended to September 30, 1994. The NRC also participated in an earlier meeting near the Davis-Besse site.

Under these circumstances, formal hearings would not appreciably add to NRC's efforts to ensure adequate protection of public health, safety, and

the environment and they are unnecessary to NRC's full understanding and consideration of public views on the Standardized NUHOMS.

G.3. Comment. One commenter stated that because there is not now and there may not be a permanent high-level radioactive waste (HLWR) repository for commercial reactor fuel, and since the NUHOMS 24P and 52B casks are non-transportable, any distinction between so called "temporary storage" and "permanent disposal" of this waste is moot. Because of the lack of a permanent repository or Monitored Retrievable Storage (MRS) in the foreseeable future, a case of a serious spill and the resultant contamination at an environmentally unsuitable site like Davis-Besse where "short and long-term adverse impacts associated with the occupancy and modification of (a) floodplain * * * potential release of radioactive material during the lifetime of the ISFSI * * * (and location) over an aquifer which is a major water resource" have been inadequately dealt with.

Response. This rulemaking to certify the Standardized NUHOMS is for interim storage of spent fuel in an approved cask for 20 years. It does not authorize or approve the ultimate disposal in a permanent HLWR repository, which is under the responsibility of the DOE. During interim storage, the user (holder of a Part 50 license) must protect the spent fuel against design basis threats, and against environmental conditions and natural phenomena such as tornadoes, tornado missiles, earthquakes, and floods. In regard to flooding, the Certificate of Compliance has a provision (see A-2 of Certificate of Compliance) for flood condition analysis to ensure that there is no release of radioactive material from flooding.

G.4. Comment. One commenter stated that projected future uses of land and water within the region are impossible to make given the unknown length of time this waste may remain on site and the options for both cask and reactor license renewal beyond 20 and 40 years, respectively, and the fact that no known man-made structure can last for the length of time that this waste must be isolated from humans and the environment. If an MRS or repository ever become available, this waste may have to be repacked. Each handling of this waste increases the likelihood of an accident, spill, contamination, and worker and public exposures.

Response. Projected future land and water use can be made based on the

continued safe operation of a reactor and its associated dry cask storage facility. The continued operation of these facilities should have no greater impact on land and water use in the future than they do today. As previously noted, the NRC Waste Confidence decisions concluded there is reasonable assurance that safe disposal of spent fuel by the Federal Government will be available by the year 2025. Therefore, the spent fuel will not remain at a reactor site for the length of time it must be isolated from humans and the environment.

It should be noted that the absence of significant environmental impacts from dry cask storage at a reactor site is the conclusion of NRC's environmental assessment for the Standardized NUHOMS and for previously approved dry casks analyzed in earlier rulemakings addressing 10 CFR Part 72, as well as in the Commission's Waste Confidence decisions in 1984 (August 31, 1984; 49 FR 34658) and 1989 (September 29, 1989; 54 FR 39765). In the 1984 Waste Confidence decision, the Commission concluded there was reasonable assurance that spent fuel can be safely stored at reactor sites, without significant environmental impacts, for at least 30 years beyond expiration of NRC reactor operating licenses. The 1989 Waste Confidence decision review reaffirmed earlier Commission conclusions on the absence of significant environmental impacts.

G.5. Comment. One commenter questioned whether the NUHOMS canister will fit the conceptual design for the DOE multi-purpose canister (MPC). If DOE chooses to use vertical casks (like the VSC) at the MRS, will the NUHOMS inner canister fit into the vertical outer concrete shell in the MPC design? If local reactors choose the VSC-24 or the NUHOMS, will either inner metal canister fit into the overpacks for DOE, or will they have to be opened after storage, returned to the pool, the fuel put in a new canister, and the old one discarded as radioactive waste?

Response. The Certificate of Compliance for the Standardized NUHOMS is intended for the interim storage of spent fuels and is not required to conform to, and has not been evaluated by NRC for conformance with, the conceptual design for the DOE MPC. DOE has not yet made final decisions regarding design or deployment of the MPC. Therefore, it is not possible to speculate on conformance of the Standardized NUHOMS to the MPC.

G.6. Comment. One commenter asked what are the criteria for 20-year renewal of this cask design? How will this be

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checked? If the design is not renewed, what is the plan?

Response. The 1989 proposed rule (May 5, 1989; 54 FR 19379) to add Subparts K and L to Part 72 indicated that the 20-year period represents what the Commission believes to be an appropriate increment for cask design approvals. The application for design reapproval would have to demonstrate the cask's ability to perform the necessary safety functions for the reapproval period. The application would be evaluated by NRC against the Commission's regulatory requirements. If a cask design is not reapproved, the licensee would have to remove casks from service as the 20-year approved storage life expired. This could mean removal of the spent fuel and storing it elsewhere.

G.7. Comment. One commenter wanted to discuss the need for an additional cask design, including how it would better meet the need of the interim dry cask storage of high-level waste.

Response. Section 218(a) of the Nuclear Waste Policy Act of 1982 (NWPA) provides the following directive: "The Secretary [of DOE] shall establish a demonstration program in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear reactor power sites, with the objective of establishing one or more technologies that the [Nuclear Regulatory] Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission." After subsequent DOE technical evaluations and based on a full review of all available data, the Commission approved dry storage of spent nuclear fuel in a final rule published in the *Federal Register* on July 18, 1990 (55 FR 29181). The final rule established a new Subpart K within 10 CFR Part 72, entitled "General License for Storage of Spent Fuel at Power Reactor Sites." Therefore, there is a need for casks to be approved by NRC to implement the NWPA to meet the demand of the interim dry cask storage of spent fuels in the nuclear power plants. However, the variety of cask designs submitted by vendors for NRC review and approval is mostly dictated by economic reasons that do not involve NRC.

H. A number of commenters wanted site-specific analyses done for each use of the Standardized NUHOMS despite the fact that each licensee must determine that the site parameters are enveloped by the cask design specified in the SAR, SER, and Certificate of

Compliance. The intent of Subpart K of 10 CFR Part 72 was to grant a general license to licensees of power reactors to use NRC-approved dry storage casks listed in 10 CFR 72.214 without additional licensing review by NRC.

H.1. Comment. A number of commenters wanted site-specific Environmental Impact Statements (EIS). Several commenters stated that an EIS should be required on any waste facility that may be permanent along the Great Lakes fresh water system. To say that this will have no adverse effect on public health and safety is a prediction most of the public does not accept. The commenter believes that the generic ruling to use a dry cask storage design at any reactor site is impossible and should be discarded. By relying on environmental evaluations done in the 1970s before Davis-Besse construction, the NRC was remiss in its responsibility to protect the people of Ohio from harm by its licensee. Another commenter wants the NRC to prepare, at a minimum, an Environmental Assessment (EA) for each site, including information on sensitive ecosystems, wildlife, demography, meteorology, and geology. The EA should discuss the cask's capability to withstand weather conditions and potential catastrophic events.

Response. The potential environmental impacts of utilities using the Standardized NUHOMS (or any of the other spent fuel casks approved by NRC (10 CFR 72.214)) have been fully considered and are documented in a published Environmental Assessment (EA) covering this rulemaking. Further as described below, the EA indicates that use of the casks would not have significant environmental impacts. Specifically, the EA notes the 30-plus years of experience with dry storage of spent fuel have shown that the previous extensive NRC analyses and findings that the environmental impacts of dry storage are small and succinctly describes the impacts, including the non-radiological impacts of cask fabrication (the impacts associated with the relatively small amounts of steel, concrete, and plastic used in the casks are expected to be insignificant), the radiological impacts of cask operations (the incremental offsite doses are expected to be a small fraction of and well within the 25 mrem/yr limits in NRC regulations), the potential impacts of a possible dry cask accident (the impacts are expected to be no greater than the impacts of an accident involving the spent fuel storage basin), and the potential impacts from possible sabotage (the offsite dose is calculated to be about one rem). All of the NRC

analyses collectively yield the singular conclusion that the environmental impacts and risks are expected to be extremely small.

NRC EA's for previously approved dry casks also concluded there was an absence of significant environmental impacts from dry cask storage at a reactor site when they were analyzed in earlier rulemakings addressing 10 CFR Part 72 as well as in the Commission's Waste Confidence decisions in 1984 (August 31, 1984; 49 FR 34658) and 1989 (September 29, 1989; 54 FR 39765). In the 1984 Waste Confidence decision, the Commission concluded there was reasonable assurance spent fuel can be safely stored at reactor sites, without significant environmental impacts for at least 30 years beyond expiration of NRC reactor operating licenses. The 1989 Waste Confidence decision review reaffirmed earlier Commission conclusions on the absence of significant environmental impacts.

Given the Commission's specific consideration of environmental impacts of dry storage and the absence of any new information casting doubt on the conclusion that these impacts are expected to be extremely small and not environmentally significant, the NRC is not convinced that meaningful new environmental insights would be gained from either a new site-specific EIS or EA for each site using dry storage methods.

The EA covering the proposed rule, as well as the finding of no significant impact (FONSI) prepared and published for this rulemaking, fully comply with the NRC environmental regulations in 10 CFR Part 51. The Commission's environmental regulations in Part 51 implement the National Environmental Policy Act (NEPA) and give proper consideration to the guidelines of the Council of Environmental Quality (CEQ). The EA and FONSI prepared as required by 10 CFR Part 51 conform to NEPA procedural requirements. Further analyses are not legally required.

The regulation 10 CFR Part 72, Subpart K, already authorizes dry cask storage and approves dry casks for use by utilities to store spent fuel at reactor sites. See 10 CFR 72.214 for a listing of information on Cask Certificate Nos. 1000 through 1003, 1005, and 1007. The purpose of this final rule is to add one more cask to the list of casks already approved by NRC. The cask added to the list in § 72.214 by this final rule complies with all applicable NRC safety requirements.

Finally, this final rulemaking applies to the use of this cask by any power reactor within the United States.

H.2. Comment. One commenter stated that the January 30, 1994, reply from

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NRC's Robert Bernero to Mr. Adamkus. EPA, is completely inadequate, as is the March 1994 "Draft Environment Assessment and Finding of No Significant Impact" because no consideration is given to the site's unsuitability even for LLRW per NRC's own admission, and "new information which could alter the original site evaluation findings" is ignored.

Response. This final rule does not provide any site-specific NRC approval or address site-specific parameters that are peculiar to a particular reactor site. The rule only adds one cask design, the Standardized NUHOMS, to the list of approved casks available for use by a power plant licensee in accordance with the conditions of the general license in Part 72. Pursuant to those conditions, each licensee must determine whether or not the reactor site parameters (including earthquake intensity and tornado missiles) are encompassed by the cask design bases considered in the cask SAR and SER. The EA and FONSI for this rule are limited in scope to the Standardized NUHOMS in a generic setting.

Unlike interim storage prescribed in 10 CFR Part 72, the in-ground disposal of radioactive material, whether high-level or low-level waste (HLW or LLW), must take into account the geologic, hydrologic, and geochemical characteristics of the site or region to isolate the radioactive waste from the accessible environment. Site criteria for in-ground disposal of radioactive wastes enable an applicant to choose an appropriate site, one with a combination of favorable conditions that will be a natural barrier to retard or attenuate the migration of any leaked radioactive material over a long period to control releases within acceptable limits. The disposal period for LLW is on the order of 500 years, and for HLW it is greater than 10,000 years. Therefore, site characteristics are investigated and assessed for interim spent fuel storage under Part 72, not to determine their suitability as a barrier to release of radioactive material, but rather to determine the frequency and the severity of external natural and artificial events that could affect the safety of an ISFSI. Unlikely, but credible, severe events are considered to determine the safety of the storage cask design.

H.3. Comment. One commenter stated that the NRC has not approved technologies for the use of spent fuel at the sites of * * * without the need for additional site reviews. If that were so, no additional site review would have been necessary at Palisades, nor would an SAR revision or a Certificate of

Compliance amendment be called for right after the VSC-24 was certified.

Response. The approval and use of dry storage technologies under the provisions of the general license are relatively new. Questions were raised by members of the public about the possible effects of earthquakes and erosion at the Palisades site on the safe storage of spent fuel in the VSC-24 dry casks. As the agency which is responsible for questions about compliance with regulatory requirements, which oversees such matters as the "cop on the beat," the NRC began an independent assessment to more closely examine the behavior of the pad at Palisades under normal conditions, under the long-term effects of erosion, and under conditions of a postulated earthquake that might cause the sand below or around the pad to move. The results of NRC's assessment were documented in the NRC Final Safety Assessment of Independent Spent Fuel Storage Installation (ISFSI) Support Pad (TAC No. M88875). As is the case at all sites, NRC requires the cask user to determine if the design basis for the storage technology being considered encompasses the site parameters at the location where the fuel is to be stored. The review at Palisades confirmed this to be the case. As experience with use of this new design is gained, modifications to the design described in the SAR are expected and allowed under the provisions of 10 CFR 72.48.

H.4. Comment. One commenter wanted the environmental impacts of alternatives, such as: renewable energy sources, conservation of energy, shutting down the nuclear power plants, and wind and solar power evaluated.

Response. Energy production is not the subject of this rulemaking and alternative sources of energy are, therefore, not reasonable alternatives requiring evaluation. This rulemaking is limited to the addition of the Standardized NUHOMS to the list of approved casks in 10 CFR 72.214.

H.5. Comment. One commenter stated that the NRC is ignoring the regulatory requirements of a site-specific license as to the feasibility of using the cask or of modifying its design.

Response. This rulemaking does not cover site-specific NRC licensees; however, the NRC is not ignoring them. Under NRC regulations, the utility has two options in using dry cask storage of spent fuel: (1) The licensee may apply for a site-specific license from NRC; or (2) the licensee may use an NRC-approved cask under the general license provisions of Subpart K of 10 CFR Part 72. However, not all licensees may be

able to use the general license provisions, either because the fuel type they possess is not storable in any cask listed in 10 CFR 72.214 or because none of the cask designs envelope the reactor site parameters. The NRC is also not ignoring site-specific license considerations relating to modifying cask designs. Quite the contrary, the criteria that apply to modifications of an NRC-approved cask such as the Standardized NUHOMS are the same as the criteria that apply to modifications of site-specific ISFSIs.

H.6. Comment. Because the populations of several states and provinces, including two-thirds of the population of Quebec, are based along the St. Lawrence Seaway, one commenter wanted an Economic Impact Statement conducted with a cost/benefit analysis citing possible adverse impact on tourism and sport fishing.

Response. A regulatory analysis, which considers both benefits and impacts of adding the Standardized NUHOMS to the list of NRC-approved casks under Subpart K of 10 CFR Part 72, was prepared in support of this rulemaking action. It was included as a part of the notice of proposed rulemaking and is also included in this final rulemaking notice. However, this regulatory analysis reflects the limited scope of this rulemaking. Because the rulemaking does not provide any site-specific NRC approvals, NRC did not evaluate site-specific economic impacts.

H.7. Comment. One commenter wanted to restrict the use of the cask to reactor sites that have responded on schedule to NRC Generic Letter 88-20, Supplement 4, "Individual Plant Examination of External Events (IPEEE)."

Response. IPEEE response submittals will not address dry cask storage and are not necessary for Standardized NUHOMS use.

H.8 Comment. One commenter stated that NUHOMS must not receive generic approval because site-specific characteristics must be considered. The commenter stated that placing this cask on the shores of Lake Erie is potential ecocide and the cask is not terrorist-proof. Another commenter stated that the potential engineering problems of storing high-level nuclear waste in a variety of climatic and geologic regions of the United States are not considered.

Response. A utility's use of the Standardized NUHOMS, for the storage of spent fuel in casks at a reactor site, would not have a significant impact on the environment. This finding is supported by the NRC safety and environmental evaluations for the Standardized NUHOMS, including the

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applicant's demonstration of compliance of the cask with NRC requirements, as well as by the 1990 rulemaking on dry cask storage and the 1984 and 1989 waste confidence proceedings. Because the Standardized NUHOMS can only be used by a licensee if the site parameters are enveloped by the cask design basis, as specified in the SAR and SER, cask storage of spent fuel near the shore of Lake Erie within the specified parameters would not have a significant impact on the environment.

I. The following comments relate to the transportability of dry storage casks to an off-site location.

I.1. *Comment.* One commenter questioned how the cask transport methods used at both on-site and off-site locations are related.

Response. In this rulemaking, the NRC reviewed the cask vendor's proposed means for transporting the Standardized NUHOMS canister and transfer cask outside the reactor buildings to the on-site storage pad under the storage requirements of 10 CFR Part 72. This on-site movement occurs within an owner-controlled area where access can be limited and where operations would be safely managed by the general licensee. The NRC did not review the Standardized NUHOMS for transport off-site, for example to a DOE MRS or repository. Generally, off-site transport of spent fuel occurs in public places where the shipper has fewer access restrictions and limited control of the surroundings. Off-site spent nuclear fuel shipments must be made in a transportation cask approved by the NRC pursuant to NRC's regulations found in 10 CFR Part 71, "Packaging and Transportation of Radioactive Material," and must also comply with pertinent Department of Transportation (DOT) regulations. At this time, the NRC is approving the Standardized NUHOMS for storage only.

I.2. *Comment.* One commenter, citing a Wisconsin Public Service Commission EIS for Point Beach, questioned the statement, "The baskets' heavier weight and larger diameter make the transportability of an intact NUHOMS canister to an MRS site or repository questionable."

Response. The NRC has not reviewed the Standardized NUHOMS in this rulemaking for off-site transportation.

I.3. *Comment.* One commenter wanted to know the relationship between the Standardized NUHOMS and the NUHOMS MP187 now applying for a Certificate of Compliance. Is the MP187 transportable? Will the canister of all models fit into the transport overpack? Wouldn't a utility be better

off waiting for the transportable cask rather than choosing a storage only cask that may have compatibility problems with an MPC system?

Response. The MP-187 transportation overpack uses a canister similar to the Standardized NUHOMS. However, it is the subject of a separate NRC review as part of a site-specific licensing application. Both the Standardized NUHOMS and the MP-187 share many common design features. However, they are separate applications, and the NRC has not been asked by the cask vendor to review whether the Standardized NUHOMS can be transported in the NUHOMS MP187 transportation overpack.

The issue of whether a utility should consider the transportability of dry storage casks is beyond the scope of this rulemaking.

I.4. *Comment.* One commenter cited a report given at the HLW Conference at Las Vegas, in 1990, "Integrated Spent Fuel Storage and Transportation Systems using NUHOMS," by PNFSI (page 671): "While subsequent transfer of an intact DSC from a NUHOMS on-site transfer cask directly to an OCRWM rail/barge is feasible, this method of transfer is not preferred since the assemblies would be oriented top down and the DSC bottom shield plug and grapple ring assembly would be orientated top up, thus complicating the canister opening and fuel handling process at the MRS or geologic repository following shipment." Has NRC evaluated this situation? Has it been rectified?

Response. Because the cask vendor applied for certification of the Standardized NUHOMS only as a storage cask under 10 CFR Part 72, transportation of this cask is not a subject of this rulemaking. Therefore, the NRC review of the standardized NUHOMS did not consider the particular transportation problem described in the comment.

J. Several commenters supported the rule stating that it is beneficial to the NRC and licensees, and it is consistent with NRC's direction to avoid unnecessary site-specific licensing reviews. Others disagreed and asked specific questions about NRC's approval and oversight process.

J.1. *Comment.* One commenter stated that the NRC statement, "The proposed rule will not have adverse effect on public health and safety," cannot be guaranteed and, therefore, even though it may be convenient for the nuclear industry and the NRC to avoid site-specific approvals, in this case these are essential for maintaining public safety. Another commenter following the same

theme questioned how the following determination was made: "this cask, when used in accordance with the conditions specified in the Certificate of Compliance and NRC regulations, will meet the requirements of 10 CFR Part 72; thus, adequate protection of the public health and safety would be ensured."

Response. Dry storage casks approved by the NRC for use under the general license are of a robust design that relies on generic cask features to ensure protection of the public health and safety. Additional NRC site-specific approvals are unnecessary. NRC oversight and inspections are sufficient to ensure that general licensees implement NRC conditions on cask use. If specific concerns are raised, the NRC also has the authority to look into them and respond as necessary to protect public health and safety. The NRC has established specific requirements in 10 CFR Part 72 that must be met in order to obtain a Certificate of Compliance for a cask. The details of the review and the bases for the NRC concluding that the cask meets the requirements of 10 CFR Part 72 are provided in the SER. The goal of dry cask storage technology is to store spent fuel safely. That goal, and the effectiveness of the technology, have been demonstrated empirically and experimentally. Different cask designs may require different types of analysis to demonstrate their safety. Therefore, different review methods may be appropriate to reach that conclusion. In each case, the level of review performed is that needed to provide assurance of adequate protection of the public health and safety.

J.2. *Comment.* Several commenters expressed concern over the exemption to 10 CFR 72.234(c) granted to VECTRA to begin transfer cask fabrication (but not use) "to have the necessary equipment available for use by Davis-Besse Nuclear Power Station (DBNPS) in mid-1995, and thus enable DBNPS to maintain complete full-core off-load capability in its spent fuel pool following the refueling outage scheduled for early 1996." One commenter said that seeking public comment and providing comments is an exercise in futility because cask approval seems to be a fait accompli. Another commenter wants no exemptions for fabrication before certification to be allowed, stating that problems have developed when all these exemptions are allowed.

Response. The NRC granted VECTRA's request for an exemption to fabricate the transfer cask before issuance of the Certificate of Compliance under its NRC-approved

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quality assurance program. NRC's exemption decision made a special effort to clarify that fabrication was entirely at VECTRA's financial risk and did not ensure favorable consideration of VECTRA's application. The NRC's finding, based on the SAR for the Standardized NUHOMS and the NRC's SER, concluded that beginning fabrication before the issuance of the Certificate of Compliance would pose no undue risk to public health and safety. Use of the transfer cask is dependent on satisfactory completion of NRC's certification process.

The NRC staff carefully considers the public comments received in rulemakings to determine whether changes are needed to the proposed rule. As noted elsewhere in this notice, several public comments received in this and other cask-approval rulemakings have resulted in changes to the SER and the Certificate of Compliance. For this reason, the public comments provide useful inputs to the NRC's safety approval process.

J.3. Comment. One commenter wanted a Regulatory Guide outlining the requirements of an SAR for cask certification (CSAR). Requirements for a CSAR have not been clarified. Specific criteria for a TR (TSAR) by a vendor for a generic Certificate of Compliance need to be set.

Response: Regulatory Guide 3.61, "Standard Format and Content for a Topical Safety Analysis Report for a Spent Fuel Dry Storage Cask," dated February 1989, provides guidance for the preparation of a TSAR. Regulatory Guide 3.62, "Standard Format and Content for the Safety Analysis Report for Onsite Storage of Spent Fuel Storage Casks," dated February 1989, provides guidance in preparing an SAR locating an ISFSI at a reactor site. Both Regulatory Guides identify similar information that can be potentially useful to prospective applicants for cask certification.

J.4. Comment. One commenter wanted to know why Pacific Nuclear divested itself of any ownership or relationship to the VSC design in January 1992. How does this affect proprietary material shared in these two closely related designs? How does it affect their relationship to the DOE MPC system?

Response. The key individual involved in the design and development of the VSC-24, who was also involved in the design and development of the NUHOMS design, left Pacific Nuclear and formed a new company, Pacific Sierra Nuclear, for the commercial manufacture and marketing of the VSC-24 storage system. The NRC has

experienced no difficulty obtaining the required safety information, including proprietary information or answers to its questions from either firm, either before or after divestiture. The NRC is not aware of any relationship between the vendors. In addition, the NRC fully reviewed the health and safety aspects of each vendor's cask design independently. The NRC did not rely on any assumed relationship between the two vendors. Concerning their relationship to the DOE MPC system, each vendor has to establish its own relationship with DOE.

J.5. Comment. One commenter wanted to know how long any model of NUHOMS has been used and if fuel has been taken out and evaluated. Has the 24P or 52B ever been used anywhere and for how long? If not, this is a test of a new cask at a reactor site.

Response. The NUHOMS-24P is being used at Duke Power Company, Oconee Nuclear Station, under a site-specific license issued January 29, 1990, and at Baltimore Gas and Electric Company, Calvert Cliffs Nuclear Station, under a site-specific license issued November 25, 1992. Monitoring and surveillance of the system is being performed under the conditions of the site-specific license. However, there has been no need for fuel to be removed for evaluation.

The NUHOMS-52B has not been used yet. Pre-operational testing of the first cask system put in place under the general license is to be performed in accordance with Certificate of Compliance, Attachment A, "Conditions for Systems Use." Monitoring and surveillance of the system will be performed under the conditions of the Certificate of Compliance.

The first use of the Standardized NUHOMS-52B will not place plant workers, the public, or the environment at risk. Conditions of use for the Standardized NUHOMS-52B ensure adequate safety of the workers, the public, and the environment. The Standardized NUHOMS-52B has been designed and will be fabricated to well established criteria of the ASME B&PV and ACI codes. It uses construction materials that have well known and documented properties to provide the necessary structural strength and radiation shielding to meet regulatory requirements. While the Standardized NUHOMS-52B is not identical to the NUHOMS-24P, many parallels in design and function can be drawn to demonstrate that the Standardized NUHOMS-52B will perform as intended.

J.6. Comment. One commenter stated that even though dry cask storage passes

all NRC rules and is one of the least expensive methods, it would seem that a different location or more expensive storage method is worth lives, resources, and property.

Response. Based on numerous NRC reviews and growing experience with dry cask storage technologies, the NRC has concluded that spent fuel can be safely stored in dry casks without significant risk to the public health and safety. More expensive storage techniques or alternative storage locations would not provide any significant additional public protection. Further, the storage location is a matter of Congressional policy as reflected in Section 218(a) of the Nuclear Waste Policy Act of 1982, which includes the following directive: "The Secretary [of DOE] shall establish a demonstration program in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear power reactor sites, with the objective of establishing one or more technologies that the [Nuclear Regulatory] Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission." Section III(a) also finds that the generators of the spent fuel have the primary responsibility to provide for the interim storage of the spent fuel until it is accepted by the DOE.

The type of spent fuel stored in the dry cask storage systems is one factor that allows the cost of the systems to be lower. Because the fuel has cooled a number of years, passive cooling can be used rather than active cooling as is required for fuel just removed from the reactor. Passive cooling reduces the cost by not having active components such as pumps, heat exchanger, water filters, and the maintenance required for these components.

J.7. Comment. One commenter opposed licensing any dry cask storage system other than the DOE multi-purpose canister (MPC) because it minimizes handling individual fuel assemblies, standardizes compatibility between storage sites and DOE, and reduces cost. Multiple cask designs lead to less expertise in production, operation, and accident management. Federal regulations need to be amended to mandate only the use of the MPC.

Response. The DOE MPC system will not be available for general use until well after 1997. In the meantime, additional storage capacity is needed now at several reactor sites. Once the MPC is available for general use, most utilities might use it. However, given the demonstrated and immediate need

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of some reactors for an additional storage capacity, and given NRC's responsibility to implement dry cask storage under a general license pursuant to NWPA of 1982, it would not be prudent for NRC now to require use of MPC designs that not even DOE has yet approved.

The NRC does not agree that the number of cask designs has a significant effect on the level of expertise available because standard engineering and scientific skills such as mechanical and civil engineers and health safety specialists can be hired as needed.

K. Several commenters had concerns about decommissioning issues.

K.1. *Comment.* One commenter, citing the draft SER, stated that decommissioning and decontamination of reactors and reactor sites remain uncertain at best. "At this time, it is not known whether demolition and removal of the HSM can be performed by conventional methods * * *. The reinforced structure of the HSM, for example, will require considerable effort to demolish." The commenter continues by indicating that in its typical fashion of putting off until tomorrow what it cannot deal with today, the NRC considers "ease of decommissioning (a) secondary consideration."

Response. The demolition of the HSM will be more difficult than a typical building because of the large amount of reinforced steel it contains. However, it is technically feasible and represents a likely level of effort similar to that required to demolish a bank vault. Bank vaults are routinely demolished without extraordinary effort. The HSM may become slightly radioactive from being exposed to a neutron radiation field during the spent fuel storage period, which would require some containment during demolition to prevent the spread of contamination. Recognizing this, the NRC considers decommissioning a secondary consideration compared to the safety afforded by storage of spent fuel in dry casks.

K.2. *Comment.* One commenter questioned how, where to, and when the spent fuel and casks will go? How does the decommissioning of NUHOMS affect the reactor decommissioning plan if no repository is sited and the pool must remain open? Another commenter expressed concern that after the operating facility has been decommissioned, the spent fuel pool may not be available for use in recovery of a breached DSC.

Response. The Commission determined in the Waste Confidence decisions that sufficient repository capacity will be available, in the first quarter of the 21st century, to accept

spent fuel that is already in storage or that will be generated during the lifetime of the reactor licensed by NRC. In addition, the Commission determined that spent fuel can be safely stored at reactors until it is disposed. The bases for these determinations are extensively discussed in the Waste Confidence decisions (54 FR 39765; September 28, 1989 and 49 FR 34658; August 31, 1984) and remain applicable today.

To operate the dry spent fuel storage area under the provisions of the general license, a license to possess or operate a nuclear power reactor under 10 CFR Part 50 is required. If the reactors were decommissioned and the license terminated, and if the spent fuel were to remain on site, a specific license issued under 10 CFR 72.48 would be required. At the time of application for a specific license and before the Part 50 license was terminated, the licensee would have to address the subject of how the fuel will be repackaged for shipment to an MRS or repository. (None of the casks now listed in 10 CFR 72.214 are approved for transportation). Decommissioning and termination of a Part 50 license for a given reactor site must take into account the proper disposal of any spent fuel.

L. A number of positive and negative comments were received about the application of 10 CFR 72.48 or Item 9 of the Certificate of Compliance to general licensees.

L.1. *Comment.* Several commenters questioned the application of 10 CFR 72.48 to Certificate of Compliance holders for use by a general licensee. Some commenters believe that this regulation is being inappropriately applied to general licensees and cask vendors. These commenters believe that the regulation was intended to apply to site-specific licenses issued under 10 CFR 72.40 only. One commenter cited the parallel application of 10 CFR 50.59 to 10 CFR Part 50 licensees. Any changes to the Certificate of Compliance and the supporting SAR and SER need public input using the rulemaking process. Who would make the decisions in using the terms "unreviewed safety questions," "significant increase," and "significant environmental impact"? Other commenters liked this addition, stating that non-safety-significant changes can be made in a timely and cost effective manner. Several commenters supported the incorporation of item number 9 (in 72.48 type language) in the draft Certificate of Compliance. One commenter wanted similar provisions made for general license holders with recordkeeping requirements applicable to the general license rather than the

certificate holder. Changes requiring an amendment to the certificate should be initiated by the certificate holder only.

Response. The NRC will not allow changes in the Certificate of Compliance under 10 CFR 72.48. However, the general licensee may make changes in the SAR under 10 CFR 72.48, unless it involves an unreviewed safety question, a significant increase in occupational exposure, or a significant unreviewed environmental impact. The general licensee must make the determinations, in the first instance, that are necessary for application of 10 CFR 72.48. The licensee must also retain its evaluations on its records (which are subject to NRC review).

Supporting this application of 10 CFR 72.48 to the general license are the words of 10 CFR 72.48(a)(1) which provides as follows: "The holder of a license issued under this part may: (i) Make changes in the ISFSI * * * described in the Safety Analysis Report, * * * (iii) * * * without prior Commission approval, unless the proposed change, test or experiment involves a change in the license conditions incorporated in the license, an unreviewed safety question, a significant increase in occupational exposure, or a significant unreviewed environmental impact." Also supporting the interpretation is 10 CFR 72.210 which provides as follows: "A general license is hereby issued for the storage of spent fuel in an independent spent fuel storage installation at power reactor sites to persons authorized to possess or operate nuclear power reactors under Part 50 of this chapter." The NRC staff is considering a rulemaking to amend NRC regulations to explicitly state that 10 CFR 72.48 applies to general licensees.

L.2. *Comment.* One commenter stated that the CFR is silent on how a vendor can change a cask SAR and certificate after the final rule. It should be made clear for the vendor that this cask SAR (CSAR) is generic for all United States sites. All seismic, control component, distance, changes in length and weight, changes in transfer devices, etc., need to be clearly defined in the proposed rulemaking for the cask and the CSAR before public comment. Who would be liable if a utility requested the vendor to change a certified cask design?

Response. The cask vendor can apply to the NRC for a change to the cask certificate and SAR after the final rule is published in the Federal Register. The vendor must propose the generic revisions to the certificate and SAR and request NRC review of the proposed revision. The NRC will evaluate the proposed revision in an SER, and if

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appropriate, prepare a draft revised Certificate of Compliance. These documents would then be placed in the NRC Public Document Room and a proposed rule would be published requesting public comments on the proposed revised Certificate of Compliance. After consideration of public comments (and assuming an appropriate basis exists), a final rule would be published incorporating the revision in the revised Certificate of Compliance.

The SAR (CSAR) is not necessarily generic for all United States operating reactor sites as the comment appears to suggest. The SAR is pertinent for those sites that have parameters that are incorporated by the cask design bases analyzed in the SAR. From a practical standpoint, it is difficult for a cask vendor to foresee all possible combinations of seismic, control component, distance, changes in length and weight, changes in transfer devices, etc. Revisions are expected when the vendor submits its initial application for approval. The vendor is responsible for the certified cask design.

L.3. Comment: One commenter wanted an explanation for not allowing buyer substitution of material for a Certificate of Compliance and that these references should be deleted from fabrication specifications and drawings. Does this mean that no changes in any materials are allowed once the design is certified? If so, explain this in reference to new models of the VSC-24 as far as materials, coatings, etc.?

Response: Under 10 CFR Part 72, the licensee is permitted to make changes in the ISFSI as described in the SAR provided the changes do not involve an unreviewed safety question. The licensee and cask certificate holder must have a quality assurance (QA) program that provides control over activities affecting quality of the identified structures, systems, and components to an extent commensurate with the importance to safety and to ensure conformance with the approved design. The NRC does not want buyers (who may not be the licensee or certificate holder) of cask materials to automatically be able to substitute material without the necessary safety evaluations. Rather, the licensee, through the cask certificate holder, has the ultimate responsibility for approving any changes to ensure conformance with the approved design. For structures, systems, and components identified as important to safety, if alternative materials are desired to be used and those specific materials form the basis of the safety evaluation, it would be appropriate to identify those

materials in the cask application. Alternatively, the certificate holder may seek an amendment to the SAR and, if necessary, a change to the Certificate of Compliance. For other structures, systems, or components that are needed for the design to be used or are otherwise prudent, but do not perform a safety function and were not relied upon in the basis for design approval, appropriate changes may be permitted provided the licensee and the Certificate of Compliance holder document the appropriate evaluations and use their quality assurance programs to implement the change. New models of the VSC-24 casks are not the subject of this rulemaking.

L.4. Comment: One commenter questioned how the draft Environmental Assessment and Finding of No Significant Impact would remain valid if changes to cask design and procedures can be made. Tests or experiments could be conducted under draft Certificate of Compliance Item No. 9 (see also 10 CFR 72.48) leading to the use of a cask that does not meet the conditions specified in the Certificate of Compliance. These changes may adversely impact site-specific public health, safety, and the environment.

Response: Given the limiting criteria of 10 CFR 72.48, it is unlikely that any change would materially change the environmental analysis. The licensee's authority under 10 CFR 72.48 does not permit any changes that involve unresolved safety issues, changes to the conditions for cask use in the Certificate of Compliance, significant increase in occupational exposure, or significant environmental impact. In the Environmental Assessment supporting this rulemaking to approve the Standardized NUHOMS, the NRC staff evaluated various types of accidents that could happen to the ISFSI facility. The NRC staff's evaluation encompassed design basis accidents and concluded that no radioactive material will be released to the environment. The NRC staff also evaluated a worst-case accident and found that the environmental impact is insignificant. Therefore, it is unlikely that the potential impact from changes to cask design or tests or experiments under the control of the licensee would introduce new environmental considerations or impacts that differ from or exceed those as analyzed in the Environmental Assessment. Changes in environmental impacts, as a result of changes to the cask design or procedures, must be evaluated by the licensee. The licensee's evaluations are available for inspection by the NRC.

M. A number of technical clarifications and editorial issues were raised.

M.1. Comment: One commenter stated that both the SAR and SER on which the Certificate of Compliance is based should be dated, as was the case for the VSC-24 Certificate of Compliance. If not, the public will be commenting on an unfinished document that can be endlessly revised.

Response: Both the draft SER and the SAR are dated November 1993. These documents were revised based on public comments.

M.2. Comment: One commenter wanted page one of the Certificate of Compliance revised to change the name "Pacific Nuclear" to "VECTRA".

Response: The Certificate of Compliance has been revised to reflect this.

M.3. Comment: One commenter pointed out a typographical error on page A-19 of the draft Certificate of Compliance. In the Basis paragraph, the sentence starting, "Acceptable damage may occur * * *" should read "Unacceptable damage may occur * * *".

Response: The Certificate of Compliance has been revised to correct this.

M.4. Comment: One commenter requested clarification of Technical Specification 1.2.16 on page A-25 of the draft Certificate of Compliance, as to whether the Yearly Average Ambient Temperature is a surveillance requirement or an action statement. It is unclear what action should be taken if either of the two specified limits (Yearly average temperature <70 °F or average daily ambient temperature <100 °F) is exceeded.

Response: The Yearly Average Ambient Temperature specification is a site-specific parameter that the user must verify in accordance with the requirement of 10 CFR 72.212(b)(3) in order to use the system under the general license. There is no surveillance requirement or further action to be taken.

Certificate of Compliance Section 1.1.1, "Regulatory Requirements for General License," also includes verification of some of the same site-specific temperature parameters and has been amended to include the 100 °F or less average daily ambient temperature parameter. Therefore, this specification mentioned in the comment (draft Certificate of Compliance Section 1.2.16) was deleted.

M.5. Comment: Apparently in reference to a December 4, 1991, letter from PNFSI that stated "The NUHOMS Certification Safety Analysis Report

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(CSAR) was * * *, one commenter believed that the use of the term CSAR was a good idea and should have been used by the NRC. The utility SAR should be called SAR as it was and the vendor SAR should be called CSAR just as NUHOMS did in 1990. Also, the acronyms topical report (TR), TSAR, and SAR are being used interchangeably and they need clear definition. This would eliminate confusion on the issue by those involved.

Response. The NRC staff generally agrees with the comment. However, the required documents that form the basis of the NRC staff's safety review are clearly identified in the SER and Certificate of Compliance.

M.6. Comment. One commenter wanted the term "certificate holder" eliminated because it is ambiguous and misleading.

Response. The term "certificate holder" has been changed to "holder of a Certificate of Compliance" to be consistent with the regulations.

M.7. Comment. One commenter wanted the draft Certificate of Compliance clarified as to who is responsible for the use of seismic restraints at each reactor site, the vendor or the utility, citing the ambiguous term "certificate holder."

Response. The utility is responsible for determining the need for seismic restraints in the spent fuel building based on seismic conditions at the site (Certificate of Compliance, Section 1.2.17).

M.8. Comment. Several commenters stated that the limits on both neutron and gamma emission rates as well as neutron and gamma spectra (Attachment A, Section 1.2.1 of draft Certificate of Compliance) result in excluding some fuel assemblies that would actually produce lower dose rates. The problem for fuel qualification stems from the fact that the neutron dose rate does not decrease as rapidly as the gamma dose rate during cooling because of the longer lived isotopes. Thus, a high burned fuel assembly excluded on the basis of high neutron source term may remain excluded, even though with extra cooling time the combined neutron/gamma dose rate could be less than the design basis case. Some fuel may not qualify because it exceeds the spectra requirements, even though the energy groups exceeding the limits may not be significant contributors to the dose rates. Combined neutron/gamma dose rates are the real concern; it is recommended that the limits on source term be replaced by limits based on dose equivalence. The fuel specification should allow other combinations of fuel enrichment,

burnup, and cooling time that would not result in exceeding the fuel cladding temperature or dose rates.

Response. The NRC staff agrees that alternative fuel specifications could be beneficial. However, this commenter did not provide a specific alternative, and the NRC staff has not evaluated any other alternative at this time because VECTRA did not include this approach in the SAR. Therefore, no other approach is considered for this rulemaking.

M.9. Comment. One commenter suggested wording changes to the draft Certificate of Compliance in Attachment A, Section 1.2.6, Action b, as follows: "Visually inspect placement of top shield plug. Re-install or adjust position of top shield plug if it is not properly seated." The commenter also proposed wording changes to Action c of the same section as follows: "Install additional temporary shielding or implement other ALARA actions, as appropriate."

Response. The NRC staff agrees with the first comment and has added the suggested words to the Certificate of Compliance, Section A.1.2.6, Action b. It is not necessary to change Action c because 10 CFR Part 20 ALARA already applies to these activities.

M.10. Comment. One commenter wanted draft Certificate of Compliance, Attachment A, Section 1.2.6, Action d deleted. The user should be permitted to analyze and document higher dose rates under 10 CFR 72.48, which is available for NRC review. Another commenter wanted the complete Section 1.2.6 of Attachment A to the draft Certificate of Compliance deleted. Given that HSM dose rates are specified, a specification for DSC dose rates is not necessary because only the workers involved in the canister closure operations are affected by them and they are already covered by the reactor radiation protection program. One commenter wanted draft Certificate of Compliance, Attachment A, Section 1.2.11 deleted. Given that HSM dose rates are specified, a specification for transfer cask dose rates is not necessary because only the workers involved are affected, not the general public. The commenter also stated that if Section 1.2.11 cannot be deleted the action statement should be revised to read as follows: "If specified dose rates are exceeded, place temporary shielding around the affected areas of the transfer cask or implement other ALARA actions, as appropriate. Review the plant records of the fuel assemblies which have been placed in the DSC to ensure they conform to the fuel specifications of Section 1.2.1. The report to the NRC should be deleted with the user being able to analyze and

document the higher dose rates under 10 CFR 72.48, which is available for NRC review."

Response. The dose rate limits are for design purposes. The dose rate is limited to ensure that the DSC has not inadvertently been loaded with fuel not meeting the vendor/applicant spent fuel specifications. The NRC will require reporting if the specified dose limits are exceeded. For these reasons, the NRC will not grant the above requests.

M.11. Comment. One commenter stated that the requirement for a dissolved boron concentration in the DSC of 2000 ppm is in excess of the 1810 ppm site-specific license. The 1810 ppm dissolved boron is sufficient to ensure reactivity below 0.95 K-eff (95/95 tolerance level with uncertainties) assuming 24 fresh fuel assemblies. For the unlikely worst case with water density of 0.2 to 0.7 gm/cc (a condition not achievable for fresh fuel), reactivity remains below 0.98 K-eff. The pool dissolved-boron verification-measurement frequency should be changed from not to exceed 48 hours to once per month to be consistent with 10 CFR Part 50 requirements.

Another commenter stated that the NUHOMS-24P canister was designed using burnup credit, the basis for licensing is "credit for soluble boron." The burnup-enrichment curve requirement (Figure 1-1, draft Certificate of Compliance) should be removed until the NRC accepts burnup credit and the pool boron specification (Section 1.2.15, draft Certificate of Compliance) is removed.

The NRC has not yet approved the use of burnup credit in criticality analyses for spent fuel storage and transportation casks. The applicant did, however, analyze credit for burnup as an alternative design acceptance basis for the NUHOMS-24P DSC, pending further consideration of burnup credit by NRC. As discussed in the SER, the NUHOMS-24P DSC criticality safety is approved based on, among others, the key assumptions of loading with irradiated fuel assemblies with equivalent enrichment <1.45 wt% U-235, misloading unirradiated fuel with maximum enrichment of 4.0 wt% U-235, and soluble boron in water for wet loading and unloading. The NRC considered the use of the burnup-enrichment curve, Certificate of Compliance, Figure 1-1, as a fuel selection criteria, to be prudent. Its use adds additional unanalyzed conservatism in the criticality safety margin. It is comparable to previous NUHOMS-24P approvals. Its use would also be consistent with the requirement

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that storage cask designs be, to the extent practicable, compatible with removal of the stored spent fuel from the reactor site, transportation, and ultimate disposition by DOE. Therefore, the NRC disagreed with the commenter's request to allow Standardized NUHOMS-24P users the option of using these burnup-enrichment curve.

Response. The comment appears to refer to the use of a NUHOMS 24P associated with a site-specific license. The "standardized NUHOMS 24P and 52B" are the subject of this general rulemaking and should not be confused with a site license. The SER for this rulemaking is clear about conditions for use, i.e., 2000 ppm boron concentration is required to ensure that the k_{eff} remains below 0.95. The SAR for this rulemaking does not request, nor does the SER grant, exemption from the requirement of $k_{eff} = 0.95$ for all accident conditions, including misloading of 24 unirradiated fuel assemblies and optimum moderation density.

The NRC has not yet approved the use of burnup credit in criticality analyses for spent fuel storage and transportation casks. The applicant did, however, analyze credit for burnup as an alternative design acceptance basis for the NUHOMS-24P DSC, pending future acceptance of burnup credit by NRC. As discussed in the SER, the NUHOMS-24P DSC criticality safety is approved based on, among other assumptions, the key assumptions of loading with irradiated fuel assemblies with equivalent enrichment <1.45 wt% U-235, misloading unirradiated fuel with maximum enrichment of 4.0 wt% U-235, and soluble boron in water for wet loading and unloading. The NRC still considers the use of the burnup-enrichment curve, Certificate of Compliance Figure 1-1, as a fuel selection criteria, to be prudent. Its use adds additional unanalyzed conservatism in the criticality safety margin. It is comparable to previous NUHOMS-24P approvals. Its use would also be consistent with the requirement that storage cask designs be, to the extent practicable, compatible with removal of the stored spent fuel from the reactor site, transportation, and ultimate disposition by DOE. Therefore, the NRC disagrees with the commenters request to allow Standardized NUHOMS-24P users the option of using the burnup-enrichment curve.

M.12. Comment. Several commenters stated that the listing of specific fuel types in the draft Certificate of Compliance is overly restrictive. Allowance should be made for very

similar fuel types or a "fuel qualification table" as proposed by the vendor should replace the listing.

Response. The NRC agrees that allowance should be made for very similar types of fuel to be stored. The Certificate of Compliance provides this flexibility. The "fuel qualification table" consideration at this time is not subject to this rulemaking.

M.13. Comment. One commenter citing the first paragraph of page A-27 of the draft Certificate of Compliance states that the postulated adiabatic heatup would result in concrete temperatures being exceeded in approximately 40 hours. As a result, it is appropriate and conservative to perform the visual surveillance to verify no vent blockage on a daily basis to ensure that a blockage existed for less than 40 hours. The last sentence in the first paragraph should reflect that the module needs to be removed from service if it cannot be established that the blockage is less than 40 hours, not 24 hours. A 24-hour surveillance interval will adequately verify this. One commenter cited an inconsistency in Section 3 of the draft Certificate of Compliance. Section 3.1 indicates that a module must be removed from service if a vent blockage is in existence for longer than 24 hours. Surveillance Section 1.3.2 indicates that a module must be removed from service if the concrete accident temperature criterion has been exceeded for more than 24 hours. A vent blockage of less than 24 hours would not cause the temperature limit to be exceeded, as explained in Section 1.3 and the objective for the 24-hour frequency required by surveillance 1.3.1. The apparent conflict between Section 1.3 and the action for Surveillance Requirement 1.3.2 should be resolved. It appears that Surveillance Requirement 1.3.2 actions are appropriate.

Response. The Certificate of Compliance has been clarified to reflect the comment.

M.14. Comment. One commenter stated that Section 1.2.14 to Attachment A of the draft Certificate of Compliance is unnecessary because the time to transfer the DSC from the transfer cask to the HSM would normally require less than 8 hours. During this time, even with temperatures above 100°F without the solar shield, any increase in fuel clad temperature and neutron shield temperature would be small and therefore not detrimental. Additionally the transfer cask is open to the atmosphere and would not pressurize.

Response. The vendor, VECTRA, has proposed this limiting condition of operation in lieu of showing what

detrimental effect might occur on the cladding or neutron shield, should the ambient conditions involve temperatures above 100°F. The NRC concurs with this condition as cited in Attachment A, Section 1.2.14 of the Certificate of Compliance.

N. Several commenters raised safeguards/sabotage issues.

N.1. Comment. One commenter cited the World Trade Center bombing and the ease with which a disturbed individual recently breached security and remained undetected at a U.S. reactor. Explosive technology has become very sophisticated in the last 15 years since the NRC and Sandia Laboratories studied the effect of sabotage on shipping casks in the March 1979, NUREG-0459, "Generic Adversary Characteristics Summary Report." Another commenter made reference to an experiment with balloons which failed. Yet another commenter questioned the degree of protection in the spent fuel pool versus dry cask storage. Will the cask be in a vital area? Will safeguards be reviewed as part of the security plan? What is the effect on the security of these casks?

Response. The NRC reviewed potential issues related to possible radiological sabotage of storage casks at reactor site ISFSIs in the 1990 rulemaking that added Subparts K and L to 10 CFR Part 72 (55 FR 29181; July 18, 1990). NRC regulations in 10 CFR Part 72 establish physical protection and security requirements for an ISFSI located within the owner controlled area of a licensed power reactor site. Spent fuel in the ISFSI is required by 10 CFR 72.212(b)(5) to be protected against the design basis threat for radiological sabotage using provisions and requirements as specified in 72.212(b)(5). Each utility licensed to have an ISFSI at its reactor site is required to develop security plans and install a security system that provides high assurance against unauthorized activities that could constitute an unreasonable risk to the public health and safety. The security systems at an ISFSI and its associated reactor are similar in design features to ensure the detection and assessment of unauthorized activities. Alarm annunciations at the ISFSI are monitored by the security alarm stations at the reactor site. Response to intrusion is required. Each ISFSI is periodically inspected by NRC and annually audited by the licensee to ensure that the security systems are operating within their design limits. The validity of the threat is continually reviewed, with a formal evaluation every six months by the NRC.

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The NRC is currently conducting a study into the consequences of a vehicle bomb detonated in the vicinity of an ISFSI. Following completion of this study the NRC will make a determination as to whether additional physical protection is warranted. In the interim, the NRC staff believes that the inherent nature of the fuel, along with the degree of protection provided by the approved storage means for spent fuel, provides adequate protection against a vehicle bomb.

N.2. Comment. One commenter wanted the emergency plan updated to include initiating events caused by unnatural occurrences, such as sabotage, particularly for this fuel storage option. The commenter believes that the NRC should determine if upgraded or new security barriers are necessary for the David-Besse site.

Response. Under 10 CFR 72.212 requirements, each general licensee must protect the spent fuel against the design basis threat of radiological sabotage. Also, 10 CFR 72.212 requires each general licensee to review the reactor emergency plan to determine whether its effectiveness is decreased, and if so, to prepare the necessary changes and obtain the necessary approvals. Therefore, the comment is already essentially incorporated into NRC regulations.

O. Several commenters had fabrication, quality assurance, and inspection concerns.

O.1. Comment. One commenter raised questions about NRC oversight and requirements for proper cask fabrication by licensees. This is based on tests of the faulty welds at the Palisades plant conducted in July 1994 just before the cask was filled, but the test was not reviewed.

Response. The ultimate responsibility to ensure proper cask fabrication belongs to the user of the cask. Each Part 50 licensee (general licensee) must have its own quality assurance (QA) program in place to oversee vendor activities. The QA requirements apply to design, purchase, fabrication, handling, inspection, testing, operation, maintenance, repair, modifications of structures, systems and components, and decommissioning that are important to safety. In addition, certified cask vendors have NRC-approved QA programs that control the implementation of these quality activities in a manner appropriate to the safety significance of these activities. In turn, the general licensee reviews, approves, and oversees its vendor's QA programs and activities. The NRC inspects both the general licensee and the subtiered vendors for compliance

with the respective QA program requirements and for the adequacy of the activities performed.

The faulty welds at Palisades in a loaded cask happened because the radiographs were not read initially. If the radiographs were read in a timely manner, the cask should not have been loaded without corrective action first being taken. NRC oversight and involvement in the process contributed to timely detection of the defective cask weld.

O.2. Comment. One commenter wants clarification of the quality assurance program. NRC should have a regulatory guide for vendors with strong criteria for audits and subcontractors, and NRC inspection reports of fabricating facilities need to be put in the PDR. How will a subcontractor of NUHOMS vendor be checked by NRC in the future? If a vendor is going to continuously change subcontractors, the NRC should inspect each cask and carefully inspect the vendor QA manual.

Response. Chapters 11 or 13 of Regulatory Guides 3.62 and 3.61, respectively, provide guidance on acceptable quality assurance programs. These chapters state that a QA program meeting the requirements of Appendix B of 10 CFR Part 50 or Subpart G of 10 CFR Part 72 will be accepted by NRC. Both Parts 50 and 72 require an audit program. An NRC Branch Technical Position titled "Quality Assurance Programs for an Independent Spent Fuel Storage Installation (ISFSI) 10 CFR 72," implements the NRC review of quality assurance programs submitted by applicants. NRC inspection reports are routinely placed in the PDR except for reports containing sensitive information. Inspection reports of NUHOMS fabrication are available in the PDR.

O.3. Comment. One commenter wanted to know if any nonconformances have been discovered in inspection reports of any fabrication of the NUHOMS canister. If so, what? How was this resolved? How has the QA program for NUHOMS been reviewed? Is there a manual? How will contractors and subcontractors be checked?

Response. A notice of nonconformance is documented in NRC Inspection Report No. 721004/93-07 dated August 23, 1993. The NRC staff conducted inspections in three phases at Duke Power Company, its contractor (Pacific Nuclear Fuel Services, Inc.) and subcontractor (Rancor, Inc.), concerning the QA activities with regard to the NUHOMS-24P dry spent fuel storage canisters. The NRC staff found that implementation of Duke Power

Company QA Program was satisfactory, in general. However, certain NRC requirements under Subpart G of 10 CFR Part 72 were not met. QA activities cited in the inspection report were documentation of nonconforming materials, parts, or components; quality assurance records; control of purchased material, equipment, and services; control of measuring and test equipment; instructions, procedures, and drawings; licensee inspection; and audits. Nonconformance corrective actions were taken and documented by Duke Power Company. The NRC staff found these corrective actions acceptable and so stated in letters dated January 13, 1994, and April 4, 1994. The corrective actions taken and the implementation of the QA Program are reviewed in periodic inspections by the NRC staff.

The latest version of the QA manual is "VECTRA Technologies, Inc., Quality Assurance Manual," Revision 1, transmitted July 25, 1994, which reflects the corporation's new name and organization and includes additional changes to update the manual and clarify QA recordkeeping commitments. The NRC staff found Revision 1 acceptable and so stated in its letter dated August 23, 1994. In its review, the NRC staff compared Revision 1 of the VECTRA QA Manual with Revision 3, Edition 2, of the PNSI QA manual, which the NRC staff found acceptable by letter dated January 28, 1993.

Contractors and subcontractors of cask vendors (or licensees) are subject to periodic QA inspections performed by the NRC staff.

O.4. Comment. One commenter wanted to know if there is a possible problem, and if there was, how it was resolved, with a material defect in Swagelok tube fittings for NUHOMS?

Response. The NRC is not aware of any material defect problem with Swagelok tube fittings on NUHOMS designs. There is no reliance on the Swagelok fittings as part of the confinement boundary for the NUHOMS canister. The fittings are covered by a metal plate that is welded on after the canister is vacuum dried. Therefore, if there is a failure in the fitting it would be the responsibility of the licensee to repair or replace it so that the DSC can be loaded properly, but its failure would not cause a public health and safety concern.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A

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of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. This final rule adds an additional task to the list of approved spent fuel storage casks that power reactor licensees can use to store spent fuel at reactor sites without additional site-specific approvals from the Commission. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington DC, 20555, telephone (301) 415-6195.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0132.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington DC, 20555, telephone (301) 415-6195.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule affects only licensees owning and operating nuclear power reactors and cask vendors. The owners of nuclear power plants do not fall within the scope of the definition of "small entities" set forth in Section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rules 10 CFR 50.109 and 10 CFR 72.62 do not apply to this final rule. A backfit analysis is not required for this final rule because this amendment does not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1) or 72.62(a).

List of Subjects in 10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 72.

60 FR 20879

Published 4/28/95

Effective 5/30/95

10 CFR Parts 2 and 72

RIN 3150-AE64

Interim Storage of Spent Fuel in an Independent Spent Fuel Storage Installation at a Reactor Site; Site-Specific License to a Qualified Applicant

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its procedures to permit the Director of Nuclear Material Safety and Safeguards to issue a site-specific license to a qualified applicant for the interim storage of spent fuel in an independent spent fuel storage installation (ISFSI) at a reactor site following satisfactory completion of NRC safety and environmental reviews and after any public hearing on the application. The amendment eliminates the need for express Commission authorization for each ISFSI license, but does not affect the scope of NRC review of an ISFSI license application or change the present opportunity for public hearing provided for in the NRC rules of practice.

EFFECTIVE DATE: May 30, 1995.

ADDRESSES: The documents referenced in this final rule are available for

inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Copies of NUREG-0575 and NUREG-1092 may also be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC, 20013-7028. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

FOR FURTHER INFORMATION CONTACT: C. William Reamer, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 415-1640.

SUPPLEMENTARY INFORMATION

- I. Background
- II. Summary of Proposed Rule
- III. Public Comments and the Commission's Response
- IV. Section-by-Section Analysis
- V. Environmental Impact: Categorical Exclusion
- VI. Paperwork Reduction Act Statement
- VII. Regulatory Analysis
- VIII. Regulatory Flexibility Act Certification
- IX. Backfit Analysis

I. Background

Under 10 CFR Part 72, the NRC will issue a specific license for the interim storage of nuclear power plant spent fuel in an independent spent fuel storage installation (ISFSI) if NRC determines the application meets the requirements of the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) and the Commission's regulations. An ISFSI is a facility that is specifically designed and constructed for interim spent fuel storage, after use of the nuclear fuel as a source of energy in a nuclear power reactor, until its shipment to the U.S. Department of Energy's (DOE) planned geologic repository for disposal of radioactive waste. Part 72 applies to site-specific licenses for storage of spent fuel in an ISFSI (up to 20 years with renewal at the option of the NRC) or a monitored retrievable storage installation (MRS) (up to 40 years with renewal at the option of the NRC). Although Part 72 also applies to spent fuel storage in approved casks at an ISFSI at a reactor site pursuant to a general license (10 CFR part 72, subpart K), the general license is not covered or affected by this rulemaking.

On June 3, 1993 (58 FR 31478), the Commission proposed rulemaking to modify the Commission's procedures for the issuance of a specific ISFSI license to a qualified applicant. After considering the public comments received in response to the

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Commission's request, the Commission has decided to adopt the proposed rule as final with one clarification. Specifically, the final rule covers an ISFSI at a reactor site. (The proposed rule was not explicit on this point.)

II. Summary of Proposed Rule

As set forth in its notice of proposed rulemaking (58 FR 31478-81), the Commission proposed to amend the procedures that authorize the NRC Director of Nuclear Material Safety and Safeguards (or the Director's designee) to issue a site-specific license for the interim storage of spent fuel in an ISFSI under 10 CFR part 72. This type of license would be issued after the NRC completes a comprehensive, documented, public health and safety review; prepares an environmental assessment and determines that issuing the license would conform to all statutory and regulatory requirements; and after an opportunity for a public hearing has been offered and any requested hearing is complete. The amendment would end the current internal practice under which the Director obtained the Commission's express authorization for each ISFSI license, after the NRC review and determination that a license should be issued under 10 CFR part 72, but before the Director actually issued the license. However, the proposed rule would not affect, in any way, existing procedures for the NRC review or the opportunity for public hearing.

III. Public Comments and the Commission's Response

In response to publication of the proposed rule and request for public comments, including extension of the public comment period (58 FR 48004; September 14, 1993), NRC received 11 written comments. (Copies of the comment letters are available for inspection in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC). In some instances, similar comments were offered by more than one commenter, and comments were therefore grouped into the categories that are set forth below, together with the Commission's response.

1. Comment: The proposed rule forecloses public participation in important reactor spent fuel storage decisions.

Several comments took issue with the Commission's statement in the notice of proposed rulemaking that the amendment would not affect the opportunity for a public hearing provided in NRC's rules of practice. One commenter argued the amendment

would exclude public participation given that the existing procedure (i.e., without the rule change) provides the public more opportunity for knowledge of an ISFSI license application because there is a second publication of notice and an open Commission meeting on the application. A second commenter expressed the view that the proposed rule should not be applied to its pending petition for hearings on the Calvert Cliffs ISFSI.

Another commenter criticized NRC for what the commenter called a refusal to open NRC doors to public participation on the spent fuel storage issue despite growing public opposition to spent fuel storage as a threat to the environment. That commenter cited public hearing requests from the Michigan Attorney General and citizens interested in the Palisades nuclear plant in a recent NRC storage cask approval rulemaking (58 FR 17948; April 7, 1993) and argued other facilities were also experiencing public opposition to spent fuel storage or transportation plans.

Response: Commission procedures provide a broad opportunity for public participation in ISFSI decisions. The Commission is not changing the public participation process in any manner in this rulemaking.

Rather, these rulemaking amendments mainly affect future NRC proceedings in which the public chooses not to participate. In this regard, we should highlight the limiting language in amended § 72.46(d) which begins with the words "If no request for a hearing or petition to intervene is filed * * *." If, on the other hand, an interested member of the public does want to participate in a hearing on an ISFSI license, then these rulemaking amendments will in no way limit the opportunity to do so. In addition, the amendments will not change the right of hearing participants to request Commission review before any ISFSI license is issued.

The public participation opportunities in NRC site-specific licenses for ISFSIs were detailed in the Commission's notice of proposed rulemaking, as follows:

Under the Commission's rules of practice, after receipt of an application for a specific license for interim spent fuel storage in an ISFSI, the NRC publishes a notice of proposed action and opportunity for hearing in the *Federal Register* to potentially interested entities and persons (10 CFR 2.105, 72.46(a)). Among other things, the notice indicates that any person whose interest may be affected may file a request for a hearing or a petition for leave to intervene. Potentially affected persons and entities have a right to obtain all relevant NRC staff safety documents, as well as all technical submissions of the license applicant. They

may request a hearing or provide written comments before any final NRC action on an ISFSI license application (10 CFR 2.105). If a hearing on the application is held before an Atomic Safety and Licensing Board, issuance of a specific license for an ISFSI by NRC must await completion of the hearing and the initial decision by the Board, and must be appropriately conditioned in light of the Board's findings and conclusions on the matters determined in the hearing (10 CFR 2.760). Under NRC rules of practice, hearing participants have the right to request Commission review of the Board's decision, including the right to request that the effectiveness of the Board's decision be stayed, and that the Commission undertake review before license issuance if they believe the facts warrant such a review (10 CFR 2.786, 2.788). Of course, absent a stay, request, under the general rule which the Commission is now proposing to restore, the Board's decision would be immediately effective, and the Director would issue the ISFSI license within 10 days after the decision, without being required to obtain additional, express Commission authorization to do so (See 10 CFR 2.764 (a) and (b)).

The opportunity for public hearing described above, including the opportunity to request Commission review before issuance of a site-specific license for an ISFSI, will continue even with adoption of these rulemaking amendments. Accordingly, because the amendments have no effect at all on public participation, they would also have no retroactive effect on any petition regarding Calvert Cliffs.

Therefore, regarding the comment that NRC doors are closed to public participation generally on spent fuel storage issues, the Commission believes the true facts are quite different. With respect to the commenter's criticism of an unrelated 1993 NRC cask-approval final rule (58 FR 17948; April 7, 1993), involving a storage cask (i.e., VSC-24) later used at the Palisades nuclear plant, which is not a relevant matter to be addressed in this rulemaking, the final rule and public participation procedures were recently upheld by the United States Court of Appeals for the Sixth Circuit. *Kelley v. Selin*, No. 93-3613 (6th Cir., Jan. 11, 1995) ("* * * [P]etitioners' assertion that the NRC attempted to shut them out of meaningful participation on the question of the use of the VSC-24 casks is meritless."). The description of and rationale for that rulemaking process can be found in the 1993 final rule (e.g., 58 FR 17962-63; April 7, 1993).

The Commission has been entrusted with the responsibility to protect the public health and safety, and to provide adequate assurance for public confidence, in the safe storage of spent nuclear fuel from nuclear power plants

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in the United States. It is NRC's responsibility as a regulator to verify the adequate protection of the public health, safety, and the environment, and to conduct its processes in the open with opportunity for full public participation. In carrying out its responsibilities, NRC will continue to rely on, among other things, a careful, comprehensive public health and safety examination of each ISFSI application, addressing NRC requirements covering site-related parameters, facility design, systems for protection against potential accidents, quality assurance and quality control, worker training, emergency planning, and operating plans and programs to ensure protection of the public from radiation and radioactive materials. To provide further assurance, NRC will continue to rely on a broad, selectively applied program of nuclear plant inspections and compliance reviews, using resident inspectors stationed at each nuclear plant ISFSI site throughout the United States, supported by augmented, expert teams as may be necessary to judge the quality of licensee compliance with ISFSI requirements. NRC will also continue to conduct its ISFSI activities through an open regulatory process that demonstrates, at all stages, an objective and full consideration of public views and concerns.

2. Comment: There are growing technical problems which should lead NRC not to go forward with its ISFSI storage rulemaking proposal.

One commenter claimed that technical problems at existing ISFSIs show dry storage will not prove to be a satisfactory solution to utilities' need for additional spent fuel storage capacity. The commenter claimed that dry casks at the Surry ISFSI were operating beyond their designed thermal, radiation and pressure limits; it also claimed that casks systems at Palisades and systems proposed for use elsewhere have inadequate thermal safety margin. The commenter stated that internal NRC studies (CNWRA-93-0006, May 1993) raise other safety problems that will increase spent fuel management costs which the public ultimately must pay. The commenter argued that, given the problems, NRC should not amend its ISFSI licensing procedures as proposed.

Response: Although the comment principally relates to specific plants and therefore seeks to present broader issues independent of the narrow procedural subject matter of this rulemaking, the following information is offered to address the stated concerns.

Spent fuel has been safely stored in independent storage casks at the Surry nuclear plant site for nearly seven years

without, to date, serious incidents or reports of casks operating outside specified thermal, radiation, or pressure limits. Moreover, the cask limits at Surry, which were measured at cask loading and are expected not to change significantly during normal operations, will continue to be monitored on a periodic basis. In addition, dry storage at the Palisades plant commenced about one and one-half years ago after a 1993 NRC rulemaking to approve the VSC-24 storage cask (58 FR 17948; April 7, 1993). That rulemaking exhaustively covered a number of public comments relating to Palisades and, in particular, comments questioning thermal safety margins of the storage cask. NRC responses to those public comments, particularly the response to comment 26, detail the basis for NRC acceptance of the thermal margins for the VSC-24. As set forth in the response, the basis for NRC acceptance of the VSC-24 included assurance that cask thermal margins were calculated using conservative assumptions (e.g., sustained ambient temperatures of 100 °F over several days; little heat conduction through the ends of the canister; fuel clad temperatures based on a peak heat generation rate rather than an average rate; a fuel temperature criterion derived from long-term degradation mechanisms rather than short-term mechanisms that would have led to a much higher temperature standard). Moreover, as indicated in the response, the calculated margins for the VSC-24 were significantly larger when more realistic assumptions were used in the calculations.¹ Thermal analyses and calculations have also been satisfactorily resolved with respect to another cask system, the NUHOMS dry storage system. Rulemaking was completed in January 1995 for the NUHOMS system, and the applicant and NRC staff analyses and calculations are available in the docket of that rulemaking. See Docket No. PR-72 (59 FR 28496) ("List of Approved Spent Fuel Storage Casks: Addition") (see also 59 FR 65898).

Turning to the internal NRC study referenced in the comment that is the subject of this response, it is important to fully identify that the report is actually directed not at spent fuel

storage at reactors, but rather at long-term geologic disposal of high-level waste and spent fuel over thousands of years. Consequently, the report does not draw conclusions that would be directly relevant to decisions about interim storage of spent fuel in ISFSIs or, more significantly, that would be contrary to the NRC's experience with such storage to date. As discussed elsewhere (e.g., 58 FR 17948; April 7, 1993; 55 FR 29181; July 18, 1990; 54 FR 19379; May 5, 1989) and as summarized below, NRC experience to date is that spent fuel can be safely stored under dry conditions over the 20-year licensed term of an ISFSI without presenting significant public health and safety risks.

Irradiated reactor fuel has been handled under dry conditions since the mid-1940's when fuel examinations began in hot cells. Light water reactor fuel has been handled in dry cells since the early 1960's, and some fuels have been in storage under dry conditions for approximately 20 years. Experience with storage of spent fuel in dry casks is extensive, and it is growing. Six nuclear power plant sites are already using dry cask storage: Virginia Power's Surry Station (500 assemblies); Carolina Power and Light's H.B. Robinson Station (60 assemblies); Duke Power's Oconee Station (530 assemblies); Public Service of Colorado's Fort St. Vrain facility (1480 fuel elements); Consumers Power's Palisades plant (160 assemblies); and Baltimore Gas and Electric's Calvert Cliffs Station (190 assemblies). A seventh plant—Northern States Power's Prairie Island plant—will begin loading assemblies in March 1995. As a result of the growing use of dry storage technology experience, NRC has over 35 staff years of experience in licensing ISFSI storage, further supported by the knowledge and experience of an outside pool of recognized, expert scientists and engineers to perform independent safety analyses of ISFSI systems and components proposed by licensees and vendors in the field.

The successful experience to date in the dry storage of spent fuel storage and the licensing of ISFSIs in the United States, provides support for the Commission's belief there is reasonable assurance such storage and licensing can safely continue without the need for express Commission authorization of each ISFSI license at a reactor site. However, past successes provide no guarantee for the future, and the Commission therefore hastens to emphasize that the NRC staff—under the Commission's active supervision, as described in this document—will continue to bring to bear its full

¹ On August 1, 1994, Consumers Power Company, the Palisades licensee, reported that two small crack-like indications and a slag-like indication had been discovered in review of radiographs of a weld in a component of a VSC-24 cask at the Palisades ISFSI. After additional analyses, the licensee concluded the cask met requirements and was capable of safely storing fuel for the 20-year license term. The licensee has nonetheless decided to remove from service and replace the cask.

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experience in the review, licensing, and inspection of ISFSIs.

3. *Comment:* The Commission proposal would unacceptably reduce Commission oversight of the siting of ISFSIs.

Several comments opposing the Commission proposal believe it will reduce NRC oversight of spent fuel storage, and they find that reduction unacceptable for several reasons. One comment reflecting this view stated that, because the Federal Government was unable satisfactorily to solve the high-level waste (HLW) management problem, and given the growing storage of spent fuel at reactor sites, there is increasing public concern over ISFSI storage and a consequent need for more, rather than less, Commission regulatory oversight of siting decisions. Another commenter stated that ISFSI licenses should have Commissioner review because Commission members have the responsibility to protect public health and safety and should not delegate it to the Director, NMSS, or to anyone else.

Other comments argued the rule change was inappropriate because of the likelihood that the number of ISFSI licenses will increase in the future and the Commission would therefore increasingly need to supervise the licensing process. One commenter, for example, observed that requiring the NRC staff to explain all aspects of a specific ISFSI license to the Commissioners would necessarily lead to a more careful review, and that this additional layer of review would become even more important as the number of ISFSIs grew.

Another commenter argued that the Commission seemed to view its license approval review as "marginal to safety," and disagreed with this view on the ground that spent fuel storage in an ISFSI created a significant hazard to the public in the vicinity of the storage facility.

Response: While it is true the Commission believes its express authorization of each ISFSI license—the internal procedure that is the subject of these rulemaking amendments—is an unnecessary, additional layer of agency review, and, therefore, can be eliminated without reducing public health and safety protection, the Commission's belief is based on its years of experience in supervision of the entire NRC licensing review process for ISFSIs which the Commission will continue to oversee.

The anchor point of the NRC's internal review process to protect public health and safety from the potential risks of a proposed ISFSI is the NRC staff's technical review of the license

application. As described in the notice of proposed rulemaking, that process is as follows:

Upon receipt of an ISFSI license application, after publishing a notice of docketing in the *Federal Register*, the NRC staff reviews the license application and applicant's supporting safety analysis report (SAR) describing the proposed ISFSI. This comprehensive, technical review by the NRC staff addresses all relevant public health and safety matters including site characteristics affecting construction and operating requirements for the proposed ISFSI, criteria for and design of the proposed installation, operation systems of the facility, site-generated waste confinement and management systems, measures to ensure the protection of the public and occupational workers from radiation and radioactive materials, analyses of potential accidents that might occur at the facility, and the applicant's plans for the conduct of ISFSI operations. In its review, the NRC staff may require further submittals from the applicant as necessary to complete the ISFSI application, will thoroughly review all of the applicant's supporting technical information, and will independently verify the applicant's safety analyses and design calculations if necessary. To document its review and conclusions, the NRC staff will prepare a comprehensive safety evaluation report (SER) detailing its safety findings and conclusions, as well as an environmental assessment (EA) for the proposed specific license for interim storage of spent fuel in an ISFSI. As noted, interested members of the public may obtain copies of these documents from NRC. None of these NRC staff technical activities would, in any way, be modified by this proposed amendment. (58 FR 31479; June 3, 1993.)

After issuance of an ISFSI license, NRC regulatory responsibilities during the 20-year license term include an inspection and enforcement program, providing for an NRC resident inspector at every licensed reactor site of an ISFSI in the United States, supplemented as necessary by teams of engineers and technical specialists, performing inspections in a wide variety of engineering and scientific disciplines, and ranging from civil and structural engineering to health physics and quality assurance. By means of selective examinations, NRC's inspection program seeks to ensure that each ISFSI licensee is meeting its responsibility for safe maintenance and operation of the ISFSI, in accordance with NRC regulations. The program is preventive in nature, and is designed to anticipate and preclude potentially significant public health and safety events or problems by identifying underlying safety concerns or latent vulnerabilities for prompt licensee management attention and adequate corrective action. NRC inspections supplement, rather than supplant, the licensee's programs, so as to provide an

independent check or verification of the effectiveness of those licensee programs and their strict conformance with NRC requirements.

The Commission, alone, is ultimately responsible and accountable for the successful regulation of spent fuel storage in licensed ISFSIs to protect the public health and safety. These rulemaking amendments do not change in any way the Commission's responsibility and accountability to the public and its elected representatives. Rather, in one respect, these amendments modify how the Commission will perform its responsibility (i.e., they eliminate a Commission vote before issuance of an ISFSI license at a reactor site). After the amendments become effective, however, the Commission will still have, and will still continue to fulfill, the responsibilities to supervise and direct the NRC staff's performance of the licensing, inspection, and enforcement activities described above. The NRC staff is required to keep the Commission fully and currently informed about significant proposed licensing actions. This means the Director, NMSS, must notify the Commission before issuance of any license for an ISFSI. The Director must also notify the Commission if the staff's inspection program reveals any significant public health and safety matter relating to ISFSI operations that are of regulatory concern. The NRC staff is also required to bring any significant policy issue regarding ISFSI activities to the Commission's attention for resolution. This means the Commission will continue to make any decision involving any significant new ISFSI issues that may arise in the future. In addition, any member of the public who has specific concerns about a proposed ISFSI license can bring them to the Commission for resolution in NRC's public hearing process, as described previously in this notice. In short, through these mechanisms, which are adequate and well-suited for the purpose, the Commission will continue to perform all of its health and safety responsibilities to the public, and will ensure that ISFSI regulation by NRC continues to take place under the Commission's supervision and direction. If new information becomes available that casts doubt on the adequacy of the oversight mechanisms, the Commission can and will take action which could include reversal of these rulemaking amendments.

4. *Comment:* ISFSI licensing should be the same as licensing for new reactors, an MRS or for the disposal repository which the Commission would need to specifically approve.

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Several comments, opposing the proposed rule, express the view that the Commission should apply to specific ISFSI licenses the same Commission approval process it would use to license nuclear reactors, a monitored retrievable storage installation (MRS), and HLW disposal facilities.

One commenter, for example, stated that, given that the cumulative load of discharged irradiated spent fuel in a spent fuel pool could contain more radioactivity than an operating nuclear reactor, greater care should therefore be given to ISFSI licensing than to the reactor itself because the potential for release is greater. Another comment, adopting the view that ISFSI licensing should be in the same category as licensing nuclear reactors or amending such licenses, stated the Commission should not characterize Commission approval of ISFSI licenses as a "special exception." Other commenters stated that spent fuel is highly radioactive and its quantity increasing. Therefore, in their view, the requirement for Commission approval of ISFSI licensing, in addition to NRC staff review, as in the case of licenses to operate reactors, is consistent with the NRC's longstanding regulatory philosophy of redundancy of safeguards and defense-in-depth.

Several comments also opposed the proposed rule change on the ground that it would make ISFSI licensing less stringent than the licensing review afforded to disposal of spent fuel in a repository. One commenter, for example, stated that, in the absence of a viable disposal solution, storage of spent fuel in an ISFSI cannot be labeled "temporary," and should therefore be done under procedures comparably stringent to those for "permanent" disposal facilities.

Another commenter viewed elimination of Commission review to be at odds with the history of the MRS which was authorized only through Congressional action in the Nuclear Waste Policy Act and which could be constructed in the future only after further Congressional action. In this commenter's view, the amount of spent fuel stored at the various ISFSIs under NRC license was approaching the amount that might be expected to be stored at the MRS. Another commenter, who also compared the quantity of spent fuel stored in ISFSIs to the capacity of an MRS, stated that NRC was not properly perceiving the inherent hazards in spent fuel storage operations.

Response: The Commission agrees in part with the thrust of the comments, that is, that NRC regulations as applied should achieve a comparable level of

protection for the public health and safety, whether the NRC-licensed activity is operation of a nuclear power reactor, storage of spent fuel in an ISFSI or an MRS, or disposal of high-level radioactive wastes in a geologic repository. Significantly, however, the goal of comparable protection does not mean ISFSI activities must be regulated by NRC's using the same NRC requirements as for reactors or geologic repositories.

Specifically, the public health and safety risks posed by ISFSI storage, described in various publicly available NRC documents identified below, are very different from the risks posed by the safe irradiation of the fuel assemblies in a commercial nuclear reactor, which requires the adequate protection of the public factor in the conditions of high temperatures and pressures under which the reactor operates. The risks of ISFSI storage are also very different from those posed by the safe disposal of the irradiated fuel in a geologic repository, which would require isolation of the wastes from the accessible environment for thousands of years.

Nuclear fuel irradiated in a power reactor is highly radioactive and produces considerable heat. However, after the minimum 1 year of cooling that precedes its storage in an ISFSI, cooling and some shielding requirements will decrease as a result of the natural decay process over time. See Generic Environmental Impact Statement on the Handling and Storage of Spent Light Water Power Reactor Fuel (NUREG-0575-V-1, August 1979) at 2-2. A fuel assembly cooled for 10 years after discharge from the reactor (typically the age of spent fuel actually placed in dry storage) generates approximately 500 watts of heat, which is on the order of the amount of heat generated by the light bulb in a floodlamp. In addition, its radiation dose rate is approximately one-half the rate when it was discharged from the reactor. ISFSIs are therefore designed to adequately dissipate the remaining heat, provide sufficient shielding from the radioactivity, and safely confine any gaseous and particulate radioactive nuclides.

The potential ability of irradiated fuel to adversely affect public health and safety and the environment is largely determined by the presence of a driving force behind dispersion. Therefore, it is the absence of such a driving force, due to the absence of high temperature and pressure conditions in an ISFSI (unlike a nuclear reactor operating under such conditions that could provide a driving force), that substantially eliminates the likelihood of accidents involving a

major release of radioactivity from spent fuel stored in an ISFSI.

[D]uring normal [storage] operations the conditions required for the release and dispersal of significant quantities of radioactive materials are not present. There are no high temperatures or pressures present during normal operations of under design basis accident conditions to cause the release and dispersal of radioactive materials. This is primarily due to the low heat generation rate of spent fuel with more than the one year of decay before storage in an ISFSI required by the rule and with the low inventory of volatile radioactive materials readily available for release to the environs. (45 FR 74693; November 12, 1980.)

Further, since its radioactive content is in the form of solid ceramic material (except for some gaseous fission products) encapsulated in high-integrity metal cladding, spent fuel is relatively invulnerable to sabotage and natural disruptive forces. See Environmental Assessment for 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste," at II-15 and -16 (NUREG-1092, August 1984); see also 45 FR 74693 (November 12, 1980).

Although the risks associated with ISFSIs described above differ from those of nuclear power plant operation or geologic disposal, the Commission's regulatory responsibility to ensure adequate protection remains the same. However, the manner in which it discharges those responsibilities will differ. Significantly, because of the very different risks, the Commission would not automatically apply all regulatory requirements to ISFSIs that it applies to other regulated activities. More particularly for this rulemaking, based on its experience to date, the Commission believes it can and should fulfill its public responsibilities, through the ISFSI licensing and inspection process described earlier in this notice, as supervised and directed by the Commission, but without the need for specific Commission authorization of every ISFSI license in the future.

However, as discussed in response to comment 8, the NRC licensing experience that support this rulemaking to eliminate specific Commission approval of ISFSI licenses is not sufficient to support a similar change for the MRS or for an ISFSI at other than a reactor site. Therefore, the Commission intends that NRC rules continue to require specific Commission authorization before issuance of a license for an MRS or a license for an ISFSI that is located at a site other than a reactor site.

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5. *Comment:* The cost savings for the agency and utilities are not an appropriate basis for the rulemaking amendments.

Several commenters took issue with the Commission's statement in the proposed rule that the amendments could save money that would otherwise be spent on unnecessary agency reviews. One commenter characterized the prospect of financial savings for the agency and its licensees as "offensive," because it was being used to justify elimination of a "safety-related" review of ISFSIs whose failure could lead to significant adverse consequences to the public health and safety. Another commenter similarly challenged the Commission's rationale for reducing the costs of duplicative Commission review on the ground that the Commission's responsibility is to protect the public health and safety, not the nuclear industry's financial well-being or its profitability for stockholders.

Response: As the foregoing responses to comments make clear, the Commission's experience to date leads it to believe it can fully perform its public protection responsibilities without specific authorization of every license for an ISFSI at a reactor site that is now required under the Commission's current process. The extra step of express Commission authorization for each specific license is a minor, ancillary matter in protecting public health and safety. If the Commission thought the additional step was needed for safety, then it would require the review step regardless of its cost.

Therefore, one consequence of the current process (i.e., the process that includes the extra step of specific Commission authorization) is that someone is paying the bill for agency review steps that are not really needed. Because Commission funding is recovered from the nuclear industry through license fees and the like, the people who are paying the bill are normally utility ratepayers. Significantly, however, the Commission would have proposed these rulemaking amendments even if its costs were not recoverable and, in that case, the people paying the bill were the U.S. taxpayers.

The Commission has the public interest responsibility to regulate effectively without imposing unnecessary or overly burdensome regulatory costs. Where, as here, the Commission can make rulemaking amendments that will allow it to perform its public health and safety responsibilities more efficiently, but do not diminish in any way the license applicant's obligation to demonstrate to NRC (and to any member of the public

who is interested) that a proposed ISFSI is safe, then the Commission believes it should make those rulemaking amendments.

6. *Comments:* The revision is a useful simplification of existing procedures that does not create any impacts adverse to safety. Given the proven safety and reliability of ISFSIs, NRC licensing procedures should not have layers of unnecessary reviews that are not used in other NRC licensing actions.

Several comments received on the notice of proposed rulemaking favor the NRC proposed rule change. One commenter stated the amendments do not change the fact that the license applicant must still undergo a comprehensive public health and safety review, environmental assessment and an opportunity for public hearing, in order to ensure the proposed ISFSI is safe and in compliance with NRC regulations. The commenter noted the only change would be elimination of Commissioner approval.

Another comment supporting the change stated it would make ISFSI procedures more like NRC licensing procedures for other types of facilities handling nuclear materials, and justified it on the basis of the safety and reliability of spent fuel dry storage in ISFSI. The commenter also noted the rule is consistent with Congress' intent in the Nuclear Waste Policy Act (Sec. 131(a)(2)) that directs the Federal government to expedite additional spent fuel storage capacity and encourage dry storage technologies which have been proven to be safe. It further argued the change was in keeping with NRC initiatives elsewhere to reduce unnecessary regulatory burdens without reducing public health and safety protection. It also noted the only practical effect of the change was to eliminate mandatory Commission review in uncontested licensing action.

Response: The Commission generally agrees with this comment. However, the Commission notes that substantial reliance is being placed in this rulemaking on the demonstrated safety and reliability of dry storage at reactors in ISFSIs to date. In this connection, although NRC has an important regulatory role outlined elsewhere in this notice, licenses have the primary responsibility for safe ISFSI operations, to protect the public health and safety, and to abide by NRC regulations. If circumstances warrant in a particular case, or if significant new information becomes available, the Commission could require specific Commission authorization before issuance of any ISFSI license in a future case.

7. *Comment:* The rule needs to reflect that DOE continues to pursue plans for interim storage.

The U.S. Department of Energy (DOE) submitted a comment expressing concern that the notice of proposed rulemaking printed in the **Federal Register** gave the erroneous impression that DOE is not pursuing plans respecting interim storage. In recounting the history of the MRS, the DOE states the Nuclear Waste Policy Act of 1982 (NWPAA) adopted a policy of spent fuel disposal in repositories and did not authorize large-scale storage facilities. DOE goes on to state that Congress amended the NWPAA in 1987 to authorize an MRS subject to specific conditions, after DOE recommended a mandated MRS site-specific proposal. The DOE comment also indicates that DOE plans continue to include interim storage. DOE requests the discussion accompanying the proposed rulemaking change should be revised to accurately reflect DOE's position.

Response: The rulemaking record should be corrected to reflect the facts set forth in DOE's letter. The Commission did not intend any of its statements in the notice of proposed rulemaking to imply circumstances contrary to those described by DOE.

8. *Comment:* The Commission's proposal not to extent the rule change to the MRS, thereby continuing the need for express Commission authorization before the Director could issue an MRS license, drew opposing views.

Several comments took opposing positions on the Commission's proposal not to eliminate Commissioner authorization for issuance of a license under Part 72 for the MRS. One commenter posited that an MRS might be simple in design and operation, much like an ISFSI, and therefore ought to be licensed by the Director, NMSS, without the need for specific authorization by the Commission. The comment recognized that the proposed MRS design might be more complex than an ISFSI, in which case the MRS license could be reviewed by Commission before issuance.

Another commenter, however, agreed with the Commission's proposal not to change the requirement for express Commission authorization of an MRS license, arguing the different procedure is justified by a fundamental difference between an ISFSI and an MRS, as those facilities are defined in Part 72.

Response: As the differing comments reflect, there is, at this time, no DOE license application or DOE-proposed design for an MRS that is before the Commission. In addition, the Commission has no basis to speculate

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on any interim storage design that DOE might propose for licensing, including whether it would be similar to the ISFSI facilities licensed by NRC to date. Therefore, inasmuch as the Commission cannot now determine that NRC licensing experience with ISFSIs would be directly applicable to an MRS, it has decided not to eliminate the requirement for express Commission authorization before issuance by the Director, NMSS, of any initial license for the acquisition, receipt or possession of spent fuel, high-level waste and associated radioactive material, for the purpose of storage at an MRS by DOE. In this connection, the Commission notes that the DOE letter referred to in comment 7 does not disagree with this aspect of the NRC rulemaking amendments.

Similarly, various plans have received mention recently regarding possible private ISFSIs at non-DOE sites (e.g., a new off-site ISFSI for the Prairie Island plant located within Goodhue County, Minnesota at a site not on Prairie Island). However, the Commission has no basis to speculate on these possible facilities or their designs. Therefore, since the Commission cannot determine that its ISFSI licensing experience would be directly applicable to these possible facilities, it has decided not to eliminate the requirement for express Commission authorization before issuance by the Director, NMSS, of any initial license for the acquisition, receipt or possession of spent fuel, high-level waste and associated radioactive material, for the purpose of storage at an ISFSI that is not located at a reactor site.

9. *Comment:* The Commission should not make rule changes that would result in an ISFSI being licensed by Agreement States.

One comment questions the proposed rule change on the ground that it might open ISFSI siting to licensing by Agreement States which may not be technically prepared to handle the responsibility.

Response: The proposed rule does not open ISFSIs to licensing by Agreement States. As the comment correctly notes, a number of States have agreements with the Commission or its predecessor, the Atomic Energy Commission, pursuant to section 274 of the Atomic Energy Act of 1954. These agreements typically provide for the Commission to discontinue, and the State to assume, responsibility for regulating certain nuclear materials in order to protect the public health and safety. However, under section 274 of the Act, the Commission will not discontinue regulatory responsibility for special nuclear materials in quantities sufficient

to form a critical mass. Because spent nuclear fuel may contain special nuclear materials in such quantities, Agreement States therefore have no authority to license spent fuel storage in an ISFSI.

The Commission's exclusive authority to license ISFSIs is reflected in § 72.8 of NRC regulations which provides that "Agreement States may not issue licenses covering the storage of spent fuel in an ISFSI * * *." The foregoing regulation would be unchanged by this rulemaking.

IV. Section-by-Section Analysis

This portion of the notice contains a section-by-section analysis of the rulemaking amendments. A comparable analysis was provided in the notice of proposed rulemaking for these amendments (58 FR 31478; June 3, 1993). The following analysis, among other things, clarifies that the rulemaking amendments apply only to an ISFSI located at a reactor site.

A. Rules of Practice (10 CFR 2.764)

The Commission is amending 10 CFR 2.764(c) to modify the references in the section to "an independent spent fuel storage installation (ISFSI)" by adding at the end of each of the references the words "located at a site other than a reactor site." As amended, the provision continues to apply in the future to licensing of an independent spent fuel storage installation (ISFSI) located at a site other than a reactor site or licensing of a monitored retrievable storage installation (MRS) under 10 CFR part 72. The amendment eliminates the requirement of express Commission authorization before issuance by the Director of NMSS (or the Director's designee) of each initial license for interim storage of spent fuel in an ISFSI at a reactor site. The general rule applies under which the Director, NMSS, has delegated authority, when no public hearing on the application has been requested, to issue a license for an ISFSI at a reactor site under 10 CFR part 72 following satisfactory completion of NRC's environmental assessment and public health and safety review, without obtaining additional, express authorization from the Commission to do so. Further, under the amendment to 10 CFR 2.764, if the application is the subject of a public hearing, then the Director will issue the license for an ISFSI at a reactor site only after an initial decision of the Atomic Safety and Licensing Board directing issuance of the license, but without the Director being required to obtain the additional, express authorization of the Commission to do so. In this

connection, 10 CFR 2.764 (a) and (b) are being clarified to explicitly incorporate "a license under 10 CFR part 72 to store spent fuel in an independent spent fuel storage installation (ISFSI) at a reactor site" to thereby cover any application for a specific ISFSI license at a reactor site that is the subject of a public hearing.

Under other provisions of the Commission's rules pertaining to the opportunity for public hearing that are not being changed, a party to the hearing could request Commission review and ask the Commission to stay the effectiveness of the Board's decision (including any direction for issuance of any ISFSI license at a reactor site) pending that review (10 CFR 2.786, 2.788). If the Commission granted a stay, then the Director would not issue the license until the terms of the stay, if any, were met or until further order of the Commission.

B. Licensing Requirements for ISFSIs (10 CFR 72.46)

The amendment of 10 CFR 72.46(d) modifies the reference to "an ISFSI" in the last sentence of paragraph (d) by adding at the end of the reference the words "located at a site other than a reactor site." As amended, the sentence continues to apply to licensing of an ISFSI located at a site other than a reactor site or licensing of the MRS. Thus, under the amendment, the Director, NMSS, will have delegated authority to issue a specific license for interim storage of spent fuel in an ISFSI at a reactor site. He/she is not required to seek the express authorization of the Commission to do so. However, the Director's authority will continue to be subject to the limitation that the Commission will be fully and currently informed and will address any significant questions of policy relating to a specific license for interim storage of spent fuel in an ISFSI at a reactor site.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this rule is the type of action described in categorical exclusion 10 CFR 51.22(c) (1) and (3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

VI. Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the

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Office of Management and Budget, approval numbers 3150-0136 and -0132.

VII. Regulatory Analysis

The Nuclear Regulatory Commission is making changes to internal procedures that are administrative in nature. The changes will not have any significant impact on the public health and safety or the U.S. economy. The amendments create no new regulatory burdens, or result in the use of resources by NRC licensees or by the staff of the NRC or an Agreement State. The Commission's current procedures require the Director, NMSS, to obtain express authorization of the Commission before issuing a license to construct and operate an ISFSI. The amendments will authorize the Director to issue a license for interim storage of spent fuel in an ISFSI at a reactor site without seeking express authorization from the Commission to do so. The costs of the amendments, in this regard, are likely to be less than the costs of the current procedure since the amendments will reduce the layers of agency review. The foregoing discussion constitutes the regulatory analysis for this final rule.

VIII. Regulatory Flexibility Act Certification

The final rule does not have a significant economic impact on a substantial number of small entities. The rule sets forth internal procedures of an administrative nature for issuance of licenses for ISFSIs at reactor sites. Owners of nuclear power reactors do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act (15 U.S.C. 632) or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121. Thus, in accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the NRC hereby certifies that this final rule will not have a significant economic impact upon a substantial number of small entities.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 72.62, does not apply to this rule and that a backfit analysis is not required because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 72.62(a) (see also 10 CFR 50.109).

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalties, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Nuclear Regulatory Commission is adopting the following amendments to 10 CFR parts 2 and 72.

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

60 FR 32430
Published 6/22/95
Effective 9/20/95

10 CFR Part 72

RIN 3150-AE17

Emergency Planning Licensing Requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS)

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations, in accordance with the Nuclear Waste Policy Act of 1982, for the emergency planning licensing requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS). The amendments are necessary to ensure that local authorities will be notified in the event of an accident so that they may take appropriate action. The regulation will provide a level of preparedness at these facilities that is consistent with NRC's defense-in-depth philosophy.

EFFECTIVE DATE: September 20, 1995.

FOR FURTHER INFORMATION CONTACT: Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301-415-6534).

SUPPLEMENTARY INFORMATION:

Background

On May 27, 1986 (51 FR 19106), following Commission approval, the proposed revision to 10 CFR part 72 relating to licensing requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS), including requirements for emergency planning, was published in the *Federal Register* for comment.

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On November 30, 1988 (53 FR 31651), the Commission published the final rule outlining the licensing requirements for ISFSI and MRS but reserved the emergency planning licensing requirements for a later date.

On May 24, 1993 (58 FR 29795), the Commission published for public comment the proposed emergency planning licensing requirements for ISFSI and MRS. This final rule codifies the emergency planning licensing requirements.

Discussion

On April 7, 1989 (54 FR 14051), the Commission published in the **Federal Register** the final regulations relating to Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees (10 CFR parts 30, 40, and 70).

These regulations require certain NRC fuel cycle and other radioactive materials licensees that engage in activities that may have the potential for a significant accidental release of NRC licensed materials to establish and maintain approved emergency plans for responding to such accidents.

Although applicable to those licensed under different parts of the Commission's regulations, the requirements for emergency plans in parts 30, 40, and 70 contain similar provisions because they are designed to protect the public against similar radiological hazards. The proposed revision of 10 CFR part 72 as published for comment on May 24, 1993 (58 FR 29795), would also require applicants for an ISFSI and MRS license to submit an emergency plan. Although the texts of the Fuel Cycle final emergency planning requirements and the parallel provisions of the proposed Emergency Preparedness licensing requirements for ISFSI and MRS are not identical, these provisions have the same purpose and use the same approach. In both cases, the proposed regulations require onsite emergency planning with provisions for offsite emergency response in terms of coordination and communication with offsite authorities and the public. It is therefore appropriate that in both cases these requirements should be expressed in the same manner.

The Commission has determined that the emergency planning licensing requirements for 10 CFR part 72

licensees should be similar to those requirements already codified in § 70.22 for part 70 licensees. Nonetheless, the Commission wishes to establish unique provisions in the emergency planning requirements for MRS facilities (and certain more complex ISFSIs) versus typical ISFSI facilities. The Commission anticipates a potential need for enhanced emergency planning requirements appropriate to the entire range of operations which may be conducted at an MRS facility (or ISFSI that may be repackaging or handling spent fuel). The Commission acknowledges that, to date, accidents that have been postulated and analyzed for either an ISFSI or MRS would result in similar offsite doses. The analysis of potential onsite and offsite consequences of accidental releases associated with the operation of an ISFSI is contained in NUREG-1140. This evaluation shows that the maximum dose to a member of the public offsite due to an accidental release of radioactive materials would not exceed 1 rem effective dose equivalent, which is within the EPA Protective Action Guides or an intake of 2 milligrams of soluble uranium (due to chemical toxicity).

Thus, the consequences of worst-case accidents involving an ISFSI located on a reactor site would be inconsequential when compared to those involving the reactor itself. Therefore, current reactor emergency plans cover all at- or near-reactor ISFSI's. An ISFSI that is to be licensed for a stand-alone operation will need an emergency plan established in accordance with the requirements in this rulemaking. NUREG-1140 concluded that the postulated worst-case accident involving an ISFSI has insignificant consequences to the public health and safety. Therefore, the final requirements to be imposed on most ISFSI licensees reflect this fact, and do not mandate formal offsite components to their onsite emergency plans.

Similarly, the Commission has conducted an analysis of potential onsite and offsite consequences of accidental release associated with the operation of an MRS. The analysis is contained in NUREG-1092. This evaluation shows that the maximum dose to a member of the public offsite due to an accidental release of

radioactive materials would likely not exceed 1 rem effective dose equivalent which is within the EPA Protective Action Guides or an intake of 2 milligrams of soluble uranium (due to chemical toxicity).

In the final NRC Generic Environmental Impact Statement on the handling and storage of light water reactor fuel,¹ it is stated that

• • • To be a potential radiological hazard to the general public, radioactive materials must be released from a facility and dispersed offsite. For this to happen:

- The radioactive material must be in a dispersible form
- There must be a mechanism available for the release of such materials from the facility, and

- There must be a mechanism available for offsite dispersion of such released material.

Although the inventory of radioactive material contained in 1000 MTHM of aged spent fuel may be on the order of a billion curies or more, very little is available in a dispersible form; there is no mechanism available for the release of radioactive materials in significant quantities from facility; and the only mechanism available for offsite dispersion is atmosphere dispersion • • •.

Furthermore, NRC has conducted Safety Evaluations on many different storage systems. Those studies included evaluations of the effects of corrosion, handling accidents such as cask drops and tipovers, explosions, fires, floods, earthquakes, and severe weather conditions. As documented in each of those Safety Evaluation Reports (SER), NRC was not able to identify any design basis accident that would result in the failure of a confinement boundary. However, to provide a conservative bounding analysis of the threat to the public health and safety, the failure of the confinement barrier was postulated. As discussed in each of the SERs and again in the response to Issue 48 the consequences of this postulated failure do not result in an increased risk to the public health and safety.

In the environmental assessment for 10 CFR Part 72,² the accident judged the most severe was the failure of a packaged fuel element. In this analysis, the accident involves the failure of a storage system containing 1.7 MTHM. The postulated individual doses are presented in Table 1.³

¹ NUREG-0575 Vol. 1 sec. 4.2.2 Safety and Accident Considerations.

² NUREG-1092 Environmental Assessment for Part 72 "Licensing Requirements for Independent Spent Fuel and High-Level Radioactive Waste."

³ NUREG-1092 Table 2.2.4-2

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TABLE 1.—TOTAL DOSE TO AN INDIVIDUAL AS A RESULT OF A FUEL CANISTER FAILURE ACCIDENT AT A SURFACE STORAGE INSTALLATION (MREM)

Pathway	Skin	Total Body	Thyroid	Lung
Air Submersion	1.0×10^{-1}	1.1×10^{-3}	1.1×10^{-3}	1.1×10^{-3}
Inhalation		1.2×10^{-5}	1.1×10^{-2}	7.3×10^{-5}
Total	1.0×10^{-1}	1.1×10^{-3}	1.2×10^{-2}	1.1×10^{-3}

Note: The maximum individual is defined as a permanent resident at a location 1600 meters southeast of the stack with a time-integrated atmospheric dispersion coefficient (E/Q of 1.5×10^{-4} sec/m²). The accident involves failure of a fuel canister containing approximately 1.7 MTHM.

Since the time these calculations were performed, the storage canisters have increased in capacity, and today the capacity of the largest approved design is approximately 9 MTHM. However, because dose varies directly with inventory, when the totals are increased by a factor of ten, they are still a very small fraction of the 300 mrem/yr⁴ an individual receives from natural background radiation, and is below the EPA protective action guides.

Nonetheless, the Commission believes it appropriate to require enhanced offsite emergency planning at an MRS (as well as any ISFSI that conducts similar operations) because of the broader scope of activities which could be performed at such a facility.

In addition to the handling and repackaging for storage of large numbers of individual fuel bundles, which involves the receipt, inspection, and transfer of several thousand transport casks, MRS operations may also encompass the consolidation of the stored fuel into casks for subsequent geological disposal after interim storage. At this time, a final MRS design has not been selected. The MRS may be a large industrial facility equipped to handle the loading, unloading, and decontaminating of a large number of spent fuel shipping containers arriving by both truck and rail. It could also include facilities to disassemble the fuel bundles and consolidate that fuel into special storage/transport containers, and facilities to handle solidified high-level waste. These facilities would require the equipment necessary to process low- and high-level waste that would be associated with the above operations. It is also possible, however, for an MRS facility to serve primarily as a warehouse operation, limited solely to accepting, sorting and later transshipping a large number of multi-purpose canister (MPC) systems of the type being considered by DOE.

The Multi-Purpose-Canister (MPC) being considered by the DOE would be used to store and transport spent fuel. The MPC system provides a sealed

canister into which spent fuel would be loaded. After loading, the MPC is evacuated, backfilled with an inert gas, and then permanently sealed. At this point the MPC concept offers several options: the sealed canister could be placed into a storage overpack at the reactor site, or it could be placed in a transportation overpack for movement to an ISFSI or MRS. After arriving at the ISFSI or MRS the MPC would most likely be placed in the storage configuration awaiting transport to the geological repository. When the repository is ready to accept fuel, several options would exist. The canisters could be placed into the transport overpack for movement to the geological repository. Once there, the canister could be transferred directly into the disposal overpack for emplacement into the repository. An option to repackage the spent fuel into disposal canisters allowing the optimum configuration required at the repository remains possible. This could take place at either the repository or MRS. Because the canister may only be opened once during its entire storage life and individual fuel elements only handled under a controlled environment, the MPC concept appears to reduce the overall risk to public health and safety.

Given the uncertainties in the design and operation of an MRS, the Commission believes it prudent to plan and provide for an enhanced level of emergency planning to include some offsite preparedness should operation of a MRS (or any ISFSI conducting similar operations) present accident risks that exceed those analyzed in NUREGs 1140 and 1092. Because the level of risk to the public health and safety from such an MRS (or ISFSI) may exceed that from a typical ISFSI, the relevant emergency planning requirements should be enhanced to include an offsite component. To achieve this goal, the final enhanced emergency plan requirements are modeled after 10 CFR 50.47(d). The intent of 10 CFR 50.47(d) was to mandate a minimum level of offsite response capability during initial reactor licensing and low power operations. This same level of response

capability is considered appropriate to MRS (and any comparable ISFSI) operations. Because much of the language needed to achieve this level of offsite protection has already been codified in 10 CFR Part 50, similar language is included within the final emergency planning requirements for an MRS (and ISFSI) (10 CFR 72.32(b)(15)(i-vi)).

The Commission notes that, for both types of facilities, this rulemaking is not required in order to provide adequate safety and may not be justified based solely on a comparison of the anticipated costs of implementing these regulations to the increase in public health and safety. Rather, the Commission believes that it is justified in terms of safety enhancement such as the intangible benefit of being able to assure the public that local authorities will be notified in the event of an accident so that they may take appropriate actions. The NRC feels that such preparedness is prudent and consistent with the NRC's philosophy of defense-in-depth.

Public Comments

The NRC received a total of 25 comment letters. Five were from utilities, two were from organizations representing utilities, eight were from State and/or local emergency management agencies, three were from the Mescalero Indian Tribe, five were from environmental/intervener groups, one was from a private citizen, and one was from the Department of Energy.

One of the letters that opposed the proposed regulation came from a member of the Mescalero Indian Tribe and included the signatures of 40 other tribal members who agreed with opposition to the proposed rule change. Opposition also came from the private citizen, all of the intervener/environmental groups, and a local governmental official.

Letters that were generally in agreement with the proposed rule change were submitted by the Mescalero Tribal MRS Program Manager, the Department of Energy, all of the utilities, all of the State governmental

⁴ NRC Report No. 94.

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agencies, and from the industry groups (though the industry group letters expressed a preference for deferring the MRS portion of the regulation (10 CFR 72.32(b)) because the industry groups considered it premature).

The comment letters that were received provided many thought-provoking and constructive comments. The Commission's evaluation of and response to these comments is presented in the following section.

Issue 1. The frequency for conducting offsite communication checks (quarterly) and onsite exercises (annually) for MRS should not be more conservative than for ISFSI communications checks (semiannually) and onsite exercises (biennially). The increase in frequency is not justified by experience or analysis.

Response. The Commission agrees that the onsite exercise requirements should be biennial rather than annual. Nonetheless, the quarterly communication checks will remain unchanged due to the obvious importance of reliable communications capabilities.

Issue 2. The proposed rule, 10 CFR 72.32(a)(15) states that the review shall include certain "arrangements" and "other organizations." Those items are not listed as specific elements to be included in the plan. It is inferred that they do not need to be addressed other than in the information regarding offsite interface activities required by paragraphs (a)(7), (a)(8), (a)(9), (a)(10), (a)(12), and (a)(14). As written, the paragraph imposes a review requirement upon the NRC and is merely informational to the applicant.

Response. The Commission agrees and has rewritten §§ 72.32(a)(15) and 72.32(b)(15) in the final regulations.

Issue 3. The discussion section and the proposed rule regarding the frequency of communications checks should be consistent. The discussion section indicates quarterly checks (page 29796, Section xii) and the proposed rule in 10 CFR 72.32(a)(12)(i) indicates semiannual checks. Semiannual checks are appropriate.

Response. The Commission disagrees. The discussion section referred to relates to a Final Rulemaking for Fuel Cycle and Material licensees published on April 7, 1989 (54 FR 14051). The requirement for quarterly communication checks is identical to that requirement for an MRS (and comparable ISFSI). The semiannual communication checks are for a typical, storage only ISFSI. There is no inconsistency.

Issue 4. At a site where the affected ISFSI site could be contiguous to a Part

50 licensed site, the 10 CFR 50.47 emergency plans should apply automatically. This would preclude the unnecessary expenditure of limited utility, State, local and Federal resources; avoid duplication in emergency preparedness; and minimize confusion offsite. In order to limit confusion, change the existing proposed first sentence of 10 CFR 72.32(a) to read: "For an ISFSI that is located on (or immediately adjacent to) the site of a nuclear power reactor * * *"

Response. The Commission agrees and has incorporated this concept into the final regulation by referencing the exclusion area as defined in 10 CFR part 100.

Issue 5. The following areas of the proposed rule introduce inconsistencies that require clarification: Paragraphs (a)(1) through (a)(13) of 10 CFR 72.32 list specific information to be included in the emergency plan. Paragraph (a)(16) also appears to list specific information to be included. However, it is unclear whether paragraphs (a)(14) and (a)(15) are intended to be specific information included in the emergency plan or review and comment requirements related to the submittal of the emergency plan which do not have to be included as specific information in the plan. The discussion contained in the supplementary information section of the Federal Register notice implies that these paragraphs are review and comment requirements only. " * * * the proposed requirements to be imposed on ISFSI licensee * * * do not mandate formal offsite components to their onsite emergency plans." (58 FR 29797, May 24, 1993.)

Response. The Commission agrees and has clarified paragraphs (a)(14) and (a)(15).

Issue 6. 10 CFR 72.32(a)(15), Offsite Arrangement: The wording " * * * arrangements to accommodate State local staff at the licensee's near-site emergency facility have been made, * * *," should be deleted from § 72.32(a)(15). The nature of potential emergency events at ISFSIs do not require personnel from State and local governments to respond in a staff capacity, and do not require near-site emergency facilities to be available. The proposed rule already requires that the emergency facilities at the site, and the emergency response staff for the facility, be adequate for emergency planning purposes.

Response. The Commission agrees and has incorporated this comment in the final regulation.

Issue 7. 10 CFR 72.32(b)(14), Offsite Review: The request for the offsite response organization to comment as to

whether an offsite component to emergency preparedness at an MRS is reasonable, appropriate, or premature at this time. We believe that it is, in fact, premature at this time. The analyses that have already been done undoubtedly contain a considerable amount of conservatism. It is far easier to add requirements later, should they be found to be recommended, than to remove them when they are confirmed to be excessive later.

Response. See Commission Response to Issue 18.

Issue 8. 10 CFR 72.32(a)(13), Hazardous Chemicals: The certification deals with hazardous materials at the facility. The last phrase of the statement does not clearly convey this message. To clarify, the commenters suggest replacing the phrase, "if applicable to the applicant's activities at the proposed place of use of special nuclear material," with "with respect to hazardous materials at the facility."

Response. The Commission agrees and has clarified the final rule accordingly.

Issue 9. 10 CFR 72.32(a)(14), Offsite Review: The proposed rule should only require the 60-day comment period for offsite response organizations prior to the initial plan submittal to the NRC. Subsequent plan changes should not have this 60-day time restriction built into the submittal process unless the plan changes involve offsite response organizations.

Response. The Commission agrees and has changed the final rule accordingly.

Issue 10. 10 CFR 72.32(a)(12)ii, Offsite Participation: "Participation of offsite response organizations in biennial exercises, although recommended, is not required," sends a message to State and local agencies that they may need extensive planning to accommodate the facility. There is nothing unique to a potential release from an ISFSI that is not enveloped by the utility and associated State and local emergency plans to support an operating plant or one with a possession only license. State and local agencies should be provided a copy of the facility's plan and be asked to take part in "table-top" exercises to help them understand their role.

Response. The Commission disagrees, because offsite response organizations should also become familiar with the facility.

Issue 11. 10 CFR 73.32(a)(12)(i), Exercises: The listed drills are capitalized, creating the impression that they are specific types of drills, such as those described in NUREG-0654, for the conduct of similar type drills for

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operating power reactors. Furthermore, ISFSIs, in view of the relatively passive nature of the facility and the potential consequence of a release as compared to operating power reactors, do not warrant this frequency. Drills should be held biennially.

Response. See the Commission's Response to Issue 12. Additionally, the frequency of these drills have been changed from semiannual to annual.

Issue 12. It is recommended that the existing wording, " * * * Radiological/Health Physics, Medical, and Fire Drills should be conducted semiannually * * *," be reworded in a manner similar to 10 CFR 50.47(b)(14) as follows: "Periodic drills shall be conducted to develop and maintain key skills."

Response. The Commission disagrees because it believes that it is beneficial to specify the types of drills necessary.

Issue 13. 10 CFR 72.32(a)(12)(i), Exercises: Semiannual fire drills may not be appropriate for an ISFSI because there are no flammable materials associated with the facility.

Response. The frequency of these drills has been changed and will be required annually.

Issue 14. 10 CFR 72.32(a)(8), Notification and Coordination: The means to promptly notify offsite response organizations should be limited to using commercial telephones. Ring-down systems should not be necessary to meet this requirement.

Response. Ring-down systems are not mentioned in the proposed or final regulations.

Issue 15. 10 CFR 72.32(a)(6), Assessment of Releases: Extensive dose assessment methodology is not necessary to implement the emergency plans.

Response. The proposed rule did not suggest requiring and the final regulation does not require "Extensive" dose assessment.

Issue 16. 10 CFR 72.32(a)(8), Notification and Coordination: The Emergency Response Data System (ERDS) provides for the automated transmission of a limited data set of selected onsite parameters (e.g., system pressure, temperature, radiation monitoring). The activation of the ERDS does not apply to nuclear power facilities that are shut down permanently or indefinitely. The activation of ERDS should not apply to ISFSI incidents even located at operating plant sites.

Response. The proposed rule did not suggest requiring and the final regulation does not require the use of ERDS.

Issue 17. 10 CFR 72.32(a)(3), Classification Requirements: The implementation guidance for the rule should provide for the simplest and easiest understood classification, notification, and reporting system for non-emergency events. NUREG-1140 "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licenses," August 1991 Section 2.27 (Spent Fuel Storage) supports the discussion that EPA's protective action guides would not be exceeded during an accident. Therefore, both classifications for a site and general emergency should not be considered. Redundant classifications, notifications and reports for non-emergency events, such as Notifications of Unusual Events (NOUEs), 1-hour non-emergency event reports, and four-hour non-emergency event reports used for operating reactors, should not apply to ISFSIs and MRSs. These conclusions are based on the magnitude, duration, and energy involved in an incident involving spent fuel storage facilities. These analyses have been docketed as part of submittals to the NRC to license individual ISFSIs. For actual ISFSI and MRS emergencies, the emergency classification, "Alert," should be sufficient. A "NOUE" classification for ISFSI and MRS emergency planning should not be necessary.

Response. The proposed rule did not suggest requiring and the final regulation does not require the use of notification of unusual events "NOUE" or "general" emergency classification.

Issue 18. EEI/WASTE supports adoption of proposed § 72.32(a) that would establish emergency planning requirements for ISFSI. EEI/WASTE recommends that NRC defer proposed § 72.32(b) that would establish emergency planning requirements for MRSs. Because no final design for MRS facilities has been selected, there is no rational basis to determine the level of radiological hazards for which emergency planning requirements are designed. It is therefore premature for the NRC to establish emergency planning requirements for MRS facilities.

Response. The Commission disagrees. The proposed emergency planning licensing requirements for an MRS as published in the *Federal Register* on May 24, 1993 (58 FR 29795), have provided to the public some insight as to what the Commission now feels would be appropriate and reasonable emergency planning licensing requirements for an MRS. One comment stated that, "We have concluded that minimum requirements, such as those currently proposed by the NRC"

rulemaking process, should serve as guidance for the starting point from which Emergency Planning and Licensing Requirements can be fully developed." Also, the Department of Energy stated that it " * * * intends to work closely with the host community to develop a comprehensive emergency response plan with offsite components that will not only encompass the requirements contained in 10 CFR 72.32(b)(15), but likely will exceed them."

Issue 19. The proposed rule does not require MRS operators to notify local residents of any increased exposure, nor does it require MRS operators to develop a plan for evacuation. This rule is an unfair burden on local emergency responders with little or no training for these type of emergencies. There is specialized training and equipment for radiation accidents and exposure; therefore, the proposed rules should provide for the training and obtaining equipment for the local responders.

Response. The Commission disagrees. The emergency planning regulations specifically require in 10 CFR 72.32(b)(8), "Notification and coordination. A commitment to and a brief description of the means to promptly notify offsite response organizations * * *". In 10 CFR 72.32(b)(9), (10), and (12), the licensee is required to provide:

Information to be communicated: A brief description of the types of information on facility status; radioactive releases; and recommended protective actions, if necessary, to be given to offsite response organizations and to the NRC. "Training. A brief description of the training the licensee will provide workers on how to respond to an emergency and any special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency personnel." * * * The licensee shall invite offsite response organizations to participate in the annual exercises.

Additionally, in 10 CFR 72.32(b)(15) and (b)(16) the licensee is required to identify:

(ii) Provisions that exist for prompt communications among principal response organizations to offsite emergency personnel who would be responding onsite.

(iii) Adequate emergency facilities and equipment to support the emergency response onsite are provided and maintained.

(iv) Adequate methods, systems, and equipment for assessing and monitoring actual or potential consequences of a radiological emergency condition are available.

(v) Arrangements are made for medical services for contaminated and injured onsite individuals.

(vi) Radiological Emergency Response Training has been made available to those off site who may be called to assist in an emergency on site.

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(16) Arrangements made for providing information to the public.

Issue 20. Although it is true that emergency plans for ISFSI and MRS need not be equivalent to emergency plans for reactors due to the relatively passive natures of the ISFSI and MRS, offsite emergency planning should not be eliminated for either type of facility. The proposed rule indicates that the maximum offsite dose due to an accidental release of radioactive material from either type of facility would probably not exceed 1 rem. However, 1 rem is within the Environmental Protection Agency (EPA) Protective Action Guides of 1-5 rem whole body, and it is the lower limit of these guides which is to be used as the basis for taking protective actions in emergency response. The commenter would also question whether worst-case scenarios have been considered in the evaluation of potential offsite doses. Worst-case scenarios would include acts of radiological sabotage, such as terrorist attacks employing explosives. Offsite emergency planning is a prudent measure to take against such uncertainties. Offsite plans may not be needed for a 10-mile radius, as is the case for power reactors, but they should not be eliminated for ISFSI and MRS. Reducing the radius of the Emergency Planning Zone (EPZ) (perhaps to 1-5 miles, as appropriate) is the proper response to the reduced hazard posed by the ISFSI and MRS. A reduced zone will provide the basis and flexibility for an enhanced offsite response in those events where this is necessary.

Response. Emergency planning requirements for power reactors, fuel cycle facilities, ISFSIs and MRSs are all based on a spectrum of accidents, including worst-case severe accidents. Emergency planning focuses on the detection of accidents and the mitigation of their consequences. Emergency planning does not focus on the initiating events. Therefore, based on the potential inventory of radioactive material, potential driving forces for distributing that amount of radioactive material, and the probability of the initiation of these events, the Commission concludes that the offsite consequences of potential accidents at an ISFSI or a MRS would not warrant establishing Emergency Planning Zones.

Issue 21. In the interest of protecting public health and safety, appropriate offsite agencies should be notified immediately of any classifiable accident at an ISFSI or MRS. Section 72.32(a)8 should specify that the agency(ies) with responsibility to respond to accidents receive the notifications. In Illinois,

IDNS should be notified of all such accidents. Consequently, we request that any licensee submitting a plan for approval under 10 CFR part 72 for an ISFSI or MRS in Illinois specifically provide in its emergency plan for timely notifications to IDNS. The notifications are important to ensure that emergency response actions are not unduly or unnecessarily delayed.

Response. The Commission agrees. This comment focuses on the rationale that was used in proposing the following requirements:

A commitment to, and a brief description of, the means to promptly notify offsite response organizations and request offsite assistance, including medical and "The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the initial submittal of the licensee's emergency plan before submitting it to NRC." * * * The licensee shall provide any comments received within the 60 days to the NRC with the emergency plan.

Issue 22. The requirements for exercises are appropriate for the facilities involved. We do believe, however, that offsite participation in these exercises should be an integral, not perfunctory, part of the exercise process. Invitations to participate should be both timely and informative, maximizing the opportunity for productive interaction between licensee and offsite personnel. The rule should require that licensees document timely invitations to offsite agencies to participate in annual or biennial exercises, and offsite participation actually resulting from these invitations.

Response. The Commission does not believe that it is necessary for the rule to require licensees to document timely invitations for offsite participation in exercises. NRC expects licensees will do so on their own initiative. Experience has shown that cooperative interactions between licensee and offsite authorities generally are quite productive.

Issue 23. Proposed 10 CFR 72.32(a)(12)(ii) and (b)(12)(ii): Participation of offsite response organizations in exercises should be required.

Response. The Commission believes that this requirement would be unnecessary in that experience shows almost all offsite authorities that are invited to participate in exercises do participate without being required to do so.

Issue 24. Proposed 10 CFR 72.32(a)(12)(i): For the ISFSI, communications checks with offsite response organizations should be conducted quarterly, not semiannually,

and onsite exercises conducted annually, not biennially.

Response. The Commission disagrees due to the very low probability of offsite consequences resulting from potential accidents at these facilities in conjunction with the low probability of a significant accident occurring.

Issue 25. Proposed 10 CFR 72.32(a)(3) and (b)(3): These provisions limit the accident classification levels to an alert for the ISFSI and a site area emergency for the MRS. For both facilities, the accident classification system should include the general emergency. This might be necessary in cases of radiological sabotage.

Response. The Commission disagrees. An essential element of a General Emergency is that "A release can be reasonably expected to exceed EPA Protective Action Guidelines exposure levels off site for more than the immediate site area." As previously discussed, NRC studies have concluded that the maximum offsite dose would be less than 1 rem which is within the EPA Protective Action Guides.

Issue 26. Proposed 10 CFR 72.32(a)(8) and (b)(8): Time limits ought to be established for notifying offsite response organizations and the NRC. An appropriate time limit is 15 minutes.

Response. The Commission has established a reasonable time limit for notification which has proven to be adequate in the past. "The licensee shall also commit to notify the NRC operations center immediately after notifications of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency."

Issue 27. Proposed 10 CFR 72.32(a)(15) and (b)(15)(i): The phrase, "and other organizations capable of augmenting the planned onsite response have been identified" should be modified to include the requirement that arrangements should be made (such as letters of agreement) with any organizations so identified.

Response. The Commission believes that offsite response organizations will respond in the event of an actual emergency in order to protect the health and safety of the public. Therefore, the Commission does not believe that this requirement would be necessary.

Issue 28. On page 29797 of the proposed rule, first column, the statement is made: "As a result of the above evaluation, the Commission is proposing that the emergency planning licensing requirements for part 72 licensees be similar to those requirements already codified in 10 CFR 70.22 for other part 70 licensees." Should this statement also include 10

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CFR 70.24 (Criticality Accident requirements)? Because the racking arrangement of spent fuel storage is changing in a manner that places spent fuel assemblies closer than in the past because of storage space needs, criticality accidents possibilities might increase, especially in the dry cell storage.

Response. The Commission disagrees. Criticality is only a concern during a wet loading and unloading evolution. Additionally, such activities would not be expected to occur under a 10 CFR part 72 ISFSI license and, therefore, there is no basis to change 10 CFR part 72 criticality requirements.

Issue 29. Because 10 CFR part 72 contains no language that parallels 10 CFR 50.54(x), we recommend that something similar to it be considered as part of this rulemaking. During the operating life of an Independent Spent Fuel Storage Facility or Monitored Retrievable Storage Facility, it is possible that an unanticipated situation may arise where the most correct action would be one that is not allowed by the license or technical specifications. The writers of 10 CFR part 50 foresaw this eventuality and allowed a licensee to:

Take reasonable action that departs from license condition or a technical specification in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent.

Although we never expect to invoke this option, prudence dictates that we should thoughtfully plan and develop procedures that allow for the possibility of low probability events where deviating from a technical specification or any other license condition is the most correct action. Adding this provision to the part 72 rule gives us a legal basis to include it in our procedures. As a licensee under both 10 CFR parts 50 and 72, we feel that similar language has been useful under 10 CFR part 50 for developing procedures, and that it would be equally useful under 10 CFR part 72.

Response. The Commission agrees. The final rule reflects this comment.

Issue 30. In § 72.32(a)(12)(ii), the proposed rule states that the licensee shall critique each exercise using individuals not having direct implementation responsibility for the plan. We disagree with this provision since it excludes our emergency planning (EP) staff from the critique. The individuals who develop the plans are EP experts. These are exactly the individuals that should critique the

exercises. As the rule is written, we would have to maintain an EP expert on staff whose only EP job function would be to critique exercises. At all other times, this individual would have to remain at arms length from the EP program. A better use of resources would be to allow individuals from the EP staff to be a part of the team that critiques exercises.

Response. The Commission agrees and has modified the final regulation to state "the licensee shall critique each exercise using individuals not having direct implementation responsibility for conducting the exercise."

Issue 31. In § 72.32(a)(14), NRC has proposed that an applicant for an ISFSI submit the proposed emergency plan to offsite response organizations (which are expected to respond in case of an onsite accident) 60 days in advance of submittal to NRC. Comments would then be forwarded to the NRC upon submittal of the ISFSI application. This requirement should be deleted as the current licensing process for review and approval of an ISFSI license affords all parties a sufficient amount of time to review and comment on the licensee's entire application to include the emergency plan. Furthermore, licensees have gained sufficient experience from the operating nuclear power plant environment to recognize the benefits of working with the offsite authorities in order to ensure adequacy of an emergency plan and its implementation. A requirement to instruct applications to do as much is unnecessary.

Response. The Commission disagrees. The Commission believes that requiring participation by offsite organizations in the development of the emergency plan significantly helps establish coordination and working relationships between the principals.

Issue 32. In § 72.32(a)(15), NRC proposed to require that the licensee of an ISFSI provide for a "near-site emergency facility" for State and local staff. This requirement should be deleted as it implies that an offsite emergency response facility is needed; when in fact NRC's own studies in NUREG-1140 demonstrate that the consequences of an accident at an ISFSI are insignificant in terms of the public health and safety. Furthermore, NRC has generally affirmed this conclusion through its evaluation of Defueled Emergency Plans for nuclear power plants which are permanently defueled but continue to store spent fuel on site (Possession Only License). The emergency plans for these facilities are appropriately focused on the onsite aspects of emergency response, while maintaining the ability to notify offsite

authorities such as the fire, police, and medical personnel who play a role in addressing onsite emergency response. No licensee-provided "near-site" facility is needed for such offsite authorities to implement their onsite emergency planning responsibilities.

Response. The Commission agrees. This change is incorporated in the final regulation.

Issue 33. Mitigation of consequences (§ 72.32(a)(5)): The NRC proposes that the licensee describe those actions which would be taken to mitigate the consequences of each type of accident. This requirement should be revised to require that the licensee describe the response actions for each classification of emergency.

Response. The regulation already requires, "Information to be communicated. A brief description of the types of information on facility status; radioactive releases; and recommended protective actions, if necessary, to be given to offsite response organizations and to the NRC."

Issue 34. Responsibilities (§ 72.32(a)(7)): The term "offsite response organizations" should be revised to "offsite authorities" in recognition of the findings of NUREG-1140, i.e., the consequences of accidental releases associated with the operation of an ISFSI would not exceed the EPA Protective Action Guidelines. The term "offsite response organizations" connotes a need for formal offsite components to the onsite emergency plan and thus, an offsite emergency response plan. This interpretation would be inconsistent with the conclusions of NUREG-1140 which postulated the worst-case accidents involving an ISFSI and found that the consequences were insignificant in terms of public health and safety. To preclude misinterpretation, the term "offsite authorities" should be used.

Response. The Commission disagrees that the term "offsite response organizations" connotes the need for "formal offsite components" to the onsite emergency plan. The term simply refers to those offsite organizations that may be needed to respond to an emergency (medical, fire department, police, etc.)

Issue 35. Information to be communicated (§ 72.32(a)(9)): As concluded by the NRC in NUREG-1140, the consequences of the postulated worst-case accident involving an ISFSI are insignificant in terms of public health and safety. Therefore, because no offsite protective actions are needed, this requirement should be revised to require that the licensee communicate

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only onsite facility status to offsite authorities.

Response. The Commission disagrees with the suggestion to delete the requirement that licensees notify offsite organizations of recommended protective actions. The Commission acknowledges that the consequences of a postulated worst-case accident involving an ISFSI are insignificant in terms of public health and safety. Nonetheless, the Commission also recognizes the need for offsite organizations to be informed by licensees so that, in the event of an accident, protective actions may or may not need to be taken.

Issue 36. Notification and coordination (§ 72.32(a)(8)): As recommended for § 72.32(a)(7), the term "offsite response organizations" should be revised to "offsite authorities."

Response. See Commission Response to Issue 34.

Issue 37. Types of accident (§ 72.32(a)(2)): The NRC has proposed that the licensee identify the "types of accidents" that could occur at an ISFSI installation "for which protective actions may be needed." This requirement should be deleted because the analysis of potential accidents and their consequences, as documented in NUREG-1140, demonstrates that there are no accidents for which protective actions for the public may be needed. Furthermore, even if there were such accidents, the emergency plan is not the appropriate document for a description of the types of accidents that could occur. As is similarly done for operating reactors, any discussion on types of accidents is contained in the ISFSI Safety Analysis Report that supports the license application. Therefore, the licensee should be required only to identify the classification of accidents in 10 CFR 72.32(a)(3) and, in general, response to those classifications, as is similarly required for operating plants.

Response. The Commission agrees to delete the words " * * * for which protective action may be needed." Nonetheless, the Commission believes that licensees should identify the types of accidents in the emergency plan in the same manner as part 30, 40, and 70 licensees have done since 1989.

Issue 38. At a minimum, NRC should revise the term "protective actions" to "protective measures." The term "protective actions," as used by operating reactors, connotes the need for an offsite emergency response plan. In the case of an ISFSI, there is no need for an offsite emergency response plan because the consequences of potential accidents which can occur will not exceed the EPA Protective Action

Guidelines. Furthermore, the term "protective measures" is now commonly used by Possession Only License holders to distinguish between onsite and offsite needs. Therefore, to preclude misinterpretation, we recommend that the term "protective measures" be used.

Response. The Commission disagrees. There is nothing in the emergency planning licensing regulations for ISFSI that requires, implies, specifies or connotes the need for a formal offsite emergency response plan.

Issue 39. Changing the proposed 10 CFR part 72 to require local involvement in the creation of the emergency response plan and require funding of local emergency planning and preparedness activities directly attributable to the additional and above ordinary risk of Spent Fuel Storage Facilities and Monitored Retrievable Storage Facilities is appropriate, given the above ordinary risk such facilities present to the local government units in their vicinity.

Response. In view of the requirements in this rule, regarding the potential involvement by local governments, a licensee may have an incentive based on its own self-interest to assist in providing manpower, items of equipment, or other resources that the local governments may need but are themselves unable to provide. The Commission believes that the question of whether the NRC should or could require a licensee to contribute to the expenses incurred by local governments in assisting in emergency planning and preparedness is beyond the scope of the rule.

Issue 40. Provisions should be included in the proposed rule to exempt Independent Spent Fuel Storage Installations (ISFSI) with very limited radionuclide inventories from the emergency planning requirements. This is best accomplished by establishing certain threshold values for the radiological consequences of potential accidents below which exemption can be granted.

Response. The Commission does not agree. An ISFSI is licensed to store specific inventories of radionuclides. The requirements focus on the emergency planning licensing requirements of an ISFSI, not the amount of fuel that may or may not be stored in an individual ISFSI during a specific time period.

Issue 41. 10 CFR 72.32(a)(12)(ii) specifies that the licensee critique each exercise using individuals not having direct responsibility for the plan. This regulation, while well intentioned, is burdensome, costly, and does not allow

the personnel with emergency preparedness knowledge to identify and correct potential weaknesses. This statement seems to satisfy the requirements for independent review, not exercise performance (i.e., similar to § 50.54(t)).

Response. See Commission Response to Issue 30.

Issue 42. 10 CFR 72.32(a) does not define the term, "site of a nuclear power reactor." Does the term mean the owner controlled area, the site boundary, or protected area? Based on the definition of the term, the regulations could require some licensees that build ISFSI near their nuclear power plants but not on the site to have two emergency plans established. Consideration should be given to clarifying terms in order to avoid this problem especially since nuclear power plant emergency plans are substantially more extensive than ISFSI emergency plans.

Response. The Commission agrees. The final regulations states "not located within the exclusion areas as defined in 10 CFR Part 100 of a nuclear power reactor."

Issue 43. The 10 CFR Part 70 emergency planning requirements (§ 70.22), which served as the model for the proposed rule, includes a provision for relief based on potential radioactive consequences. It contains the option of demonstrating that the consequences of an accidental release are below certain levels and thereby eliminated the need for emergency preparedness. We recommend that a parallel provision be included in the proposed rule for the ISFSI. This would enable ISFSI with minimal radioactive sources to avoid the substantial costs associated with emergency preparedness which would far outweigh the negligible benefit to the safety of the public.

Response. See Commission Response to Issue 40.

Issue 44. Unfortunately, the public is not very reassured by the idea that the only offsite emergency planning that the discussion on the MRS cites is that the operators of the facility should have current phone numbers of offsite emergency services. Nor is the public very reassured that the NRC asserts that the maximum off-site exposure from an MRS would be 1 rem. If this were true, there is a legitimate concern about being subjected to radiation equivalent to 50 additional chest x-rays—presumably without any notification or disclosure, let alone opportunity to avoid such irradiation. However, it does not seem credible that one could gather together the highest concentration of radioactivity on the planet and assert that there will be virtually no risk of

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exposure. This overlooks, at the very least, the potential for malicious attack on the facility from the air, such as the United States has engaged in wiping out "strategic targets" in other countries.

Response. A more accurate characterization of the offsite emergency planning component for an MRS is as follows: "(7) Responsibilities. A brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the NRC;" and "(9) Information to be communicated. A brief description of the types of information on facility status; radioactive release; and recommended protective actions, if necessary, to be given to offsite response organizations and to the NRC;" and "(10) * * * special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency personnel;" and "(12) * * * The licensee shall invite offsite response organizations to participate in the annual exercises."

Additionally, the offsite emergency planning component for an MRS includes:

(i) Arrangements for requesting and effectively using offsite assistance on site have been made.

(ii) Provisions exist for prompt communications among principal response organizations to offsite emergency personnel who would be responding onsite.

(iv) Adequate methods, systems, and equipment for assessing and monitoring actual potential consequence of a radiological emergency condition are available.

(vi) Radiological Emergency Response Training has been made available to those offsite who may be called to assist in an emergency onsite.

(16) Arrangements made to provide information to the public.

Also, see the Commission's response to Issue 46.

Issue 45. The discussion of MRS emergency planning indicates the dependence upon offsite emergency responders. The fact that individuals would be called upon to respond to radiological crises without any special training, without protective gear and equipment is deeply disturbing to local community officials with whom we have reviewed this proposal. The full liability for dealing with emergency situations should reside with the operators of such a facility and those who are specially trained and understand that they are at risk, and are compensated on that basis. Dependence upon untrained local responders in a true emergency would amount to human sacrifice, and is not acceptable.

Response. The regulations allow for extensive coordination, communication, and training of offsite response organizations. (See Commission Response to Issue 19.)

Issue 46. Although the MRS will represent the largest concentration of irradiated fuel, to date, in one location, the U.S. Nuclear Regulatory Commission has recently proposed a rule that would waive any offsite emergency planning or evacuation, in direct contradiction to the promises of safety to prospective host communities.

Response. In the final NRC Generic Environmental Impact Statement on the handling and storage of light water reactor fuel,⁵ it is stated that

* * * To be a potential radiological hazard to the general public, radioactive materials must be released from a facility and dispersed offsite. For this to happen:

• The radioactive material must be in a dispersible form

• There must be a mechanism available for the release of such materials from the facility, and

• There must be a mechanism available for offsite dispersion of such released material.

Although the inventory of radioactive material contained in 1000 MTHM of aged spent fuel may be on the order of a billion curies or more, very little is available in a dispersible form; there is no mechanism available for the release of radioactive materials in significant quantities from facility; and the only mechanism available for offsite dispersion is atmosphere dispersion * * *

Furthermore, NRC has conducted Safety Evaluations on many different storage systems. Those studies included evaluations of the effects of corrosion, handling accidents such as cask drops and tipovers, explosions, fires, floods, earthquakes, and severe weather conditions. As documented in each of those Safety Evaluation Reports (SER), NRC was not able to identify any design basis accident that would result in the failure of a confinement boundary. However, to provide a conservative bounding analysis of the threat to the public health and safety, the failure of the confinement barrier was postulated. As discussed in each of the SERs and again in the response to Issue 48 the consequences of this postulated failure do not result in an increased risk to the public health and safety.

In the environmental assessment for 10 CFR part 72,⁶ the accident judged the most severe was the failure of a packaged fuel element. In this analysis, the accident involves the failure of a storage system containing 1.7 MTHM. The postulated individual doses are presented in Table 1.⁷

TABLE 1.—TOTAL DOSE TO AN INDIVIDUAL AS A RESULT OF A FUEL CANISTER FAILURE ACCIDENT AT A SURFACE STORAGE INSTALLATION (MREM)

Pathway	Skin	Total body	Thyroid	Lung
Air Submersion	1.0×10^{-1}	1.1×10^{-3}	1.1×10^{-3}	1.1×10^{-3}
Inhalation		1.2×10^{-3}	1.1×10^{-2}	7.3×10^{-3}
Total	1.0×10^{-1}	1.1×10^{-3}	1.2×10^{-2}	1.1×10^{-3}

Note: The maximum individual is defined as a permanent resident at a location 1600 meters southeast of the stack with a time-integrated atmospheric dispersion coefficient (E/Q of 1.5×10^{-4} sec/m³). The accident involves failure of a fuel canister containing approximately 1.7 MTHM.

Since the time these calculations were performed, the storage canisters have increased in capacity, and today the capacity of the largest approved design is approximately 9 MTHM. However, because dose varies directly with

inventory, when the totals are increased by a factor of ten, they are still a very small fraction of the 300 mrem/yr⁸ an individual receives from natural background radiation, and is below the EPA protective action guides.

Also see the Commission's response to Issues 19 and 48.

Issue 47. It is premature for the Commission to make a rule with regard to emergency planning for an MRS. We also agree with others who point out

⁵NUREG-0575 Vol. 1 sec. 4.2.2 Safety and Accident Considerations.

⁶NUREG-1092 Environmental Assessment for part 72 "Licensing Requirements for Independent Spent Fuel and High-Level Radioactive Waste."

⁷NUREG-1092 Table 2.2.4-2

⁸NRCP Report No. 94.

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that the MRS is a significantly different facility than an ISFSI—for two reasons. The first is the difference in the amount of irradiated fuel that would be present at the site: it is four orders of magnitude greater at an MRS than a single reactor site's load. The second is the fact that the MRS, according to the most common model described, would be a repackaging center for the waste. This industrial scale handling of high-level waste and irradiated fuel raises many safety and release concerns.

Response. See the Commission's response to Issues 18 and 48.

Issue 48. The commenter believes that the massive concentration of irradiated fuel at the reactor sites should have been the occasion for revisiting the emergency planning for each nuclear power plant. The irradiated fuel inventory on site far exceeds the amount of radioactive material contained within the reactor core at any one time. The fact that irradiated fuel has been forced to accumulate at reactor sites is no reason to now dismiss that greater radiological hazard that it poses to the populace and the environment. A rulemaking on the ISFSI in our view should include; "at reactor site facilities" and examine the current emergency planning with regard to the potential for much greater releases in the event of sabotage or natural disaster.

Response. For there to be a significant environmental impact resulting from an accident involving the dry storage of spent nuclear fuel, a significant amount of the radioactive material contained within a cask must escape its packaging and enter the biosphere. There are two primary factors that protect the public health and safety from this event. The first is the design requirements for the cask that are imposed by regulation. The regulatory requirements, as codified in the 10 CFR part 72, have sufficient safety margins so that, during normal storage cask handling operations, off-normal events, adverse environmental conditions, and severe natural phenomena, the casks will not release a significant part of its inventory to the biosphere. Furthermore, the cask must be designed to provide confinement safety functions during the unlikely but credible design basis events, as required in § 72.122(b). In addition, § 72.122(h)(i) requires that the fuel clad be protected against degradation that leads to gross rupture, and § 72.122(1) requires that the fuel be retrievable. During the design evaluation process, these provisions received careful consideration. These general design criteria place an upper bound on the energy a cask can absorb before the fuel is damaged. No credible dynamic events

have been identified that could impart such significant amounts of energy to a storage cask after that cask is placed at the ISFSI.

Additionally, there is a second factor which does not rely upon the cask itself but considers the age of the spent fuel and the lack of dispersal mechanisms. There exists no significant dispersal mechanism for the radioactive material contained within a storage cask. In the case of an operating nuclear power plant, the dispersal mechanism for radioactive material in the spent fuel is either derived from the heat produced during the fission process or the decay heat which exists in the short period immediately following shutdown. During these times, the potential exists for an accident that could cause the fuel cladding to fail. However, emergency systems exist at every power plant to protect against just such an occurrence. On the other hand, spent fuel stored in an ISFSI is required to be cooled for at least 1 year. Based on the design limitations, the majority of spent fuel is cooled greater than 5 years. At this age, spent fuel has a heat generation rate that is too low to cause significant particulate dispersal in the unlikely event of a cask confinement boundary failure. Therefore, the consequences of worst-case accidents involving an ISFSI located on a reactor site would be significantly less than those accidents involving the reactor. Therefore, current reactor emergency plans adequately provide for the protection of the public from the ISFSI located at or near reactor sites.

Issue 49. An ISFSI not at a reactor warrants site-specific emergency planning that includes evacuation of surrounding population at least as stringent as nuclear reactor licensing. For example, specific provisions should be included requiring: (1) Coordination of the on-site plan with the off-site local and state emergency management agencies; (2) training of the potential off-site responders; and (3) public information/education for local populations.

Response. The Commission does not agree that as a general matter emergency plans for an ISFSI must include evacuation planning. Nonetheless the Commission agrees that the specific provisions mentioned in the comment should be and are specifically included in the proposed and final emergency planning licensing requirements for ISFSI and MRS. See 10 CFR 72.32(a) (10), (12), (14), and (16) and 10 CFR 72.32(b) (10), (12), (14), (15), and (16).

Issue 50. There is no mention of financing the affected jurisdictions to provide the requisite resources to

support the planning, operations, response, exercises, recovery and equipment requirements defined as necessary in the plan for off-site agency response.

Response. See the Commission's response to Issue 39.

Issue 51. The NRC should defer as premature the proposed § 72.32(b), which would establish emergency planning requirements for MRS's, until a final MRS design has been selected. Until it is decided whether such facilities would be equivalent, in the Commission's words, to "a large industrial facility" or merely to "a warehouse operation," there is no rational basis to determine the appropriate level of emergency planning requirements.

Response. See Commission Response to Issue 18.

Issue 52. NRC should prepare a full environmental impact statement before issuing any emergency response guidelines. The potential for environmental damage from accidents during the transportation, storage and repackaging of spent fuel rods cannot even be calculated until DOE determines whether to develop a universal cask or a dual purpose cask for transportation/storage/disposal of spent fuel rods. Until this very preliminary decision is made, there is no way of determining what level of activity (or the dangers from that activity) will actually take place at an MRS facility. NRC's response to this uncertainty, "to mandate a minimum level of offsite response capability" does not address potential and very real risks to the public.

Response. The Commission disagrees. The Commission stated the following in the preamble to the proposed rule:

The Commission has determined under the National Environmental Policy Act of 1969, as amended, the Commission's regulations in subpart A of 10 CFR part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment; and therefore, an environmental impact statement is not required. The rule would not affect the probability or the size of accidental radioactive releases. It might in some cases reduce the doses people near the facility site could receive. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. The environmental assessment and finding of no significant impact are contained in Section 4.3 of NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and

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Other Radioactive Material Licensees."⁹ Single copies are available upon written request from NRC Distribution Section, Office of Administration, USNRC, Washington, DC 20555.

Issue 53. An MRS facility poses far greater potential risk to the public than even a nuclear power plant simply by virtue of the quantity of spent fuel rods to be stored. For example, a nuclear power plant stores no more than 1 metric ton of spent fuel while the MRS facility is authorized to store from 10,000 to 15,000 metric tons of spent fuel. Therefore, licensing procedures and requirements for an MRS facility must be more strict than even those required for a nuclear power plant.

Response. See the Commission's Response to Issue 48.

Issue 54. The NRC must require off-site evacuation planning for MRS facilities. NRC estimates that "the maximum dose to a member of the public offsite due to an accidental release of radioactive materials would likely not exceed 1 rem effective dose equivalent" cannot be defended because of the uncertainties. Without an EIS, NRC must at a minimum assume that an MRS facility poses an equal danger to the public as a nuclear reactor does. CCNS therefore recommends that NRC minimally require a 10-mile radius evacuation plan for MRS facilities.

Response. See the Commission's Response to Issue 48.

Issue 55. The NRC's requirement to "notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers" is completely unrealistic. The current applicants for MRS facilities are all Indian Nations whose reservations are located in rural areas with no emergency response training, equipment or expertise for handling nuclear emergencies. At a minimum, NRC's proposed rule must require training and equipment for both emergency response personnel as well as hospital facilities.

Response. See the Commission's Response to Issue 19.

Additionally, the Commission received 21 suggested editorial changes to the wording of the proposed regulations. Those changes that improved or clarified the proposed regulations were incorporated into the final regulations. Those suggested

changes in wording that departed from the Commission's original intent were not incorporated into the final regulations.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore, an environmental impact statement is not required. The rule does not affect the probability or the size of accidental radioactive releases. It might in some cases reduce the doses people near the facility site could receive. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. The environmental assessment and finding of no significant impact are contained in 4.3 of NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees."

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0132.

Public reporting burden for this collection of information is estimated to average 625 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for further reducing reporting burden to the Information and Records Management Branch, T-6F33, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0132), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the accident scenarios considered by the Commission as well as the costs and

benefits of actions considered. The analysis is available by contacting Michael T. Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301-415-6534).

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605b), the Commission certifies that this rule does not have a significant economic impact upon a substantial number of small entities.

The final rule requires the development and implementation of emergency plans by licensees who are authorized to possess significant amounts of radioactive material. These companies do not fall within the definition of a small business found in the Small Business Act, 15 U.S.C. 632, or within the small business size standards set forth in 13 CFR part 121. The final rule will affect three (3) licensees. Two licensees hold 10 CFR part 50 licenses and are required to comply with the provisions respecting emergency plans set out in part 50. Thus, the final rule does not impose a significant economic impact on a substantial number of small entities, as defined in the Regulatory Flexibility Act of 1980.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109 and 10 CFR 72.62, do not apply to this rule change because these amendments do not involve any provisions which would impose backfits as defined in § 50.109(a)(1) or in 10 CFR 72.62. The final rule does not change or impose additional requirements on any ISFSI currently licensed under 10 CFR part 72. For existing ISFSIs at reactor sites, the final rule continues the current option to comply with 10 CFR 50.47. For G.E. Morris, the only ISFSI licensed under 10 CFR part 72 for operation away from a reactor site, the licensee currently is required to have emergency response capabilities that will comply with this rule. Therefore, inasmuch as the rule imposes no requirements on any part 50 facility and imposes no new or different requirements on any part 72 facility after a license has been issued, a backfit analysis is, therefore, not required for this final rule.

List of Subjects in 10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

⁹Copies of NUREGs may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, DC 20402-9328. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC 20555-0001.

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For the reasons set out in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C 552, and 553, the NRC is adopting the following amendments to 10 CFR part 72:

60 FR 38235
Published 7/26/95
Effective 11/24/95

*Clarification of Decommissioning
Funding Requirements*

See Part 30 Statements of Consideration

60 FR 53505
Published 10/16/95
Effective 11/15/95

*Physical Security Plan Format
Changes*

See Part 50 Statements of Consideration

61 FR 6762
Published 2/22/96
Effective 4/22/96

*Employee Protection Policies; Minor
Amendments*

See Part 19 Statements of Consideration

61 FR 24669
Published 5/16/96
Effective 6/17/96

*Termination or Transfer of Licensed
Activities: Recordkeeping
Requirements*

See Part 20 Statements of Consideration

61 FR 29636
Published 6/12/96
Effective 6/12/96

*Minor Amendments to Miscellaneous
Cross-References*

See Part 30 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART

PHYSICAL PROTECTION OF PLANTS AND MATERIALS

STATEMENTS OF CONSIDERATION

52 FR 6310
Published 3/2/87
Effective 4/1/87

10 CFR Part 73

Requirements for Criminal History Checks

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is adding a new regulation to implement a program for the control and use of criminal history data received from the Federal Bureau of Investigation (FBI) as part of criminal history checks of individuals granted unescorted access to nuclear power facilities or access to Safeguards Information by nuclear power reactor licensees. Conducting criminal history checks of such individuals will help assure that individuals with criminal histories impacting upon their reliability and trustworthiness are not permitted unescorted access to a nuclear power facility or access to Safeguards Information. Issuance of this regulation

is required under the provisions of Public Law 99-399, "Omnibus Diplomatic Security and Anti-Terrorism Act of 1986."

EFFECTIVE DATE: April 1, 1987.

FOR FURTHER INFORMATION CONTACT: Kristina Jamgochian, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4754.

SUPPLEMENTARY INFORMATION:

Background

Section 606 of Pub. L. 99-399, "The Omnibus Diplomatic Security and Anti-Terrorism Act of 1986," requires nuclear power reactor licensees and applicants to conduct criminal history checks through the use of FBI criminal history data on individuals with unescorted access to nuclear power facilities or access to Safeguards Information. The Act, signed by the President on August 27, 1986, requires the NRC to issue regulations to establish conditions for the use and control of the criminal history data received from the FBI. These conditions include procedures for the taking of fingerprints, limits on use and dissemination of criminal history data, assurance that the information is used solely for its intended purpose, and provisions that individuals subject to fingerprinting are provided the right to complete, correct, and explain information in their criminal history records prior to any final adverse determination.

On November 7, 1986, the NRC published the proposed rule in the **Federal Register** (51 FR 40438). The comment period ended on December 8, 1986.

Summary of Public Comment

Comments were received from 35 respondents comprised of 25 power reactor licensees, three industry groups, three private citizens, two contractors, one engineering firm, and one State agency. Copies of comment letters are available for public inspection and

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copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC.

The proposed rule has been modified in response to comments received, as appropriate, and is being published in final form effective on April 1, 1987.

A summary of the public comments, along with their resolution, follows. The comments have been placed in the following categories:

1. Facility Access vs. Vital Area Access.

2. Grandfathering.

3. Temporary Unescorted Access.

4. Contractors, Manufacturers, and Suppliers.

5. Challenge of Information.

6. Transfer of Criminal History File.

7. Miscellaneous Issues.

1. *Facility Access vs. Vital Area Access.* During the internal staff review of the proposed rule, a question arose as to whether or not fingerprinting should be required only for unescorted access to vital areas rather than to the nuclear power facility which also includes protected areas. To be consistent with the legislative intent and specific language of Pub. L. 99-399, the staff had written the proposed rule to require fingerprinting of individuals granted unescorted access to the nuclear power facility. Additionally, during the public comment period on the proposed Access Authorization Rule, licensee and industry groups commented that it was more cost effective to run a single access authorization program, especially since the majority of employees needing access to the protected area also required access authorization to one or more vital areas. In the interest of determining whether this view still prevailed, specific response was requested during the public comment period to the following question: Should fingerprinting be required of individuals for unescorted access to vital areas only or to the nuclear power facility? In response to the question, the following responses were received: 13 commenters recommended fingerprinting all individuals granted unescorted access to the nuclear power facility, 2 commenters recommended fingerprinting for vital area unescorted access only, and 2 commenters felt that the decision should be left with the licensee. A majority of the commenters who felt that it would be an administrative burden to fingerprint for unescorted access to vital areas only, based their conclusions on the fact that it would be inefficient to establish two screening programs since it is industry's experience that in over 70% of the cases, those personnel authorized unescorted access to protected areas of the plant also require access to vital areas of the plant, and that an effective security program requires fingerprinting of all individuals

with unescorted access to the plant.

Accordingly, as a single level of access authorization enhances security, reduces the administrative burden, promotes efficiencies in administering the program, and as licensees currently have one access authorization program for unescorted access to both protected and vital areas of the plant, fingerprinting will be required of all individuals requiring unescorted access to the nuclear power facility, which is to both the protected areas and vital areas of the plant.

2. *Grandfathering.* Eighteen respondents recommended that a provision be incorporated for grandfathering individuals permanently employed by a licensee with a stipulated minimum period of employment. The NRC staff recognizes that in many of these cases individuals have been screened under an industry run access authorization program which may also include behavioral observation. The staff also recognizes the administrative burden and cost associated with fingerprinting all current employees requiring unescorted access to the nuclear power facility. However, Pub. L. 99-399 mandates that "The Nuclear Regulatory Commission . . . shall require each licensee . . . to fingerprint *each individual* who is permitted unescorted access to the facility or is permitted access to Safeguards Information under Section 147." Commenters have pointed out that the Public Law states: "The Commission, by rule, may relieve persons from the obligations imposed by this section, upon specified terms, conditions, and periods. . . ." However, in "The Report of the Committee on the Judiciary United States Senate on S. 274, As Amended," September, 1985, in VII. Section-by-Section Analysis, it is stated that "The Committee is of the view that this exception be used only in extraordinary circumstances."

Grandfathering currently employed individuals with unescorted access is not considered to be an extraordinary circumstance and does not meet the intent of Congress. Accordingly, grandfathering individuals currently employed on the effective date of final rule publication will not be permitted.

3. *Temporary Unescorted Access.* The majority of respondents requested clarification in the final rule regarding temporary unescorted access during the period of time required to process and return the submitted fingerprints to the licensee for newly hired individuals, especially during refueling or maintenance outage when a nuclear power facility is in cold shutdown. This issue is resolved in the final rule in that the provisions of the rule may be waived for devitalized areas when all or a part of a nuclear power facility is in cold

shutdown, refueling, or devitalized status. This is allowable due to the fact that prior to startup, a thorough visual inspection of the devitalized area is made by knowledgeable plant personnel to identify signs of tampering or attempted sabotage, and appropriate safety procedures are followed to assure that all operating and safety systems are functioning normally.

In addition, a number of respondents requested clarification in the final rule concerning the status of temporary workers during unexpected equipment failures or maintenance outages. Commenters noted that if a facility has a sudden, unexpected equipment failure, a number of temporary personnel may be needed immediately to fix the problem and the estimated 25-day turnaround time for fingerprint verification could delay a plant from starting up as scheduled. The Commission notes that the broader issue addressing requirements for granting temporary access is currently under NRC management review and the role of fingerprinting in that context is not yet defined. Pending resolution of this broader issue it is premature to stipulate in this rule the fingerprint requirements associated with temporary access. Accordingly, as a temporary measure, a statement has been included in § 73.57(b)(2) stating that upon further notice to licensees and without further rulemaking the Commission may waive requirements of this fingerprint rule on a temporary basis for temporary workers.

4. *Contractors, Manufacturers, and Suppliers.* A number of commenters felt that requiring criminal history checks of contractors, manufacturers, and suppliers for access to Safeguards Information was unreasonable, as it was difficult for licensees to directly control whether employees of contractors, manufacturers, and suppliers requiring access to Safeguards Information were, in fact, fingerprinted. The NRC staff recognizes the difficulty for licensees in controlling who is actually having access to Safeguards Information utilized by contractors, manufacturers, and vendors. However, the staff believes that the magnitude of the problem is not as great as perceived and can be significantly diminished through the proper use of information management techniques. Licensees and applicants may find it more appropriate to segregate general or nonsensitive information into unprotected appendices or attachments. Initial requests for bids or proposals and original design sketches, for example, would probably not qualify as Safeguards Information. The NRC's NUREG-0794, "Protection of

¹ Copies of NUREG-0794 may be purchased through the U.S. Government Printing Office by calling (202) 275-2080 or by writing to the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies may also be continued

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Unclassified Safeguards Information" ¹ provides criteria and guidance to assist licensees and other persons who possess Safeguards Information in establishing an information protection system that satisfies the requirements of 10 CFR 73.21.

In addition, a commenter expressed concern for the privacy of the personal information and felt that the control of dissemination of this information would be better served by collecting and maintaining the specific information in an individual's criminal history record check file with the individual's actual employer, rather than having the information held by other organizations. The staff recognizes the merit in this comment but the Public Law only allows for dissemination of the information contained in an individual's criminal history record to and between licensees.

Commenters requested that the rule allow for these non-licensees to directly submit fingerprint cards to the NRC and maintain the files as the licensees feel that they cannot directly control every contractor, manufacturer, and supplier employee who designs, assembles, or operates all equipment which falls under the definition of Safeguards Information in 10 CFR 73.21. Respondents also felt that there should be a provision allowing utilities to pass on criminal history data to the agency that is completing the remainder of the background investigation for unescorted access so that the complete file on an individual would be stored in one place and would be much more accessible for audit by the utility and the NRC. According to the FBI, the information contained in a criminal history record may not be disseminated to anyone other than the licensee. Licensees may hire a contractor to actually do the initial fingerprinting of individuals if they so wish, but that would be the extent of involvement on the contractor's part for criminal history record checks.

A provision for transferring the data from one licensee to another only upon the individual's request is contained in the rule to preclude excessive fingerprinting, especially for contractors, suppliers and manufacturers. The licensee may not disclose the record or personal information collected and maintained to persons other than the subject individual, his/her representative, or those who have a need to have access to the information in performing assigned duties in the process of granting or denying unescorted access to the nuclear power

facility or access to Safeguards Information.

5. *Challenge of Information.* A number of commenters requested clarification on whether an individual who chooses to correct, complete, or explain an alleged deficiency in his/her criminal history record should be granted or denied unescorted access while the challenge of information is in progress. The decision to grant or deny access while a challenge is being processed is at the discretion of and is the responsibility of the licensee. This is a judgment decision by the licensee and is dependent on the needs of the situation, the availability and cost of escort, prudence, security considerations, and other factors perceived by the licensee.

Respondents also requested specific definition of the two terms "final adverse action" and "reasonable amount of time" contained in the proposed rule under § 73.57(e)(2). Pub. L. 99-399, section (c)(3), states that the Commission shall prescribe regulations "to provide each individual subject to fingerprinting under this section with the right to complete, correct, and explain information contained in the criminal history records prior to any final adverse determination". The term "reasonable amount of time" was added to the proposed rule to indicate that to be workable, some practical limits were necessary on the time for the challenge to take place. Accordingly, the staff has revised the rule to state: "Licensees must provide at least 10 days for an individual to initiate action to challenge the results of an FBI criminal history records check after the record being made available for his/her review. The licensee may make a final adverse determination, if applicable, only upon receipt of the FBI's confirmation or correction of the record." The FBI has indicated that once they receive a formal challenge of the record, a re-check is completed within approximately 3-4 weeks and the information is then returned to the licensee. Therefore, given 10 days to initiate action, an estimated one-month FBI resolution time, and allowance for the information to be mailed back and forth, the time involved could average in the order of 60 days. The licensee may not make a final adverse determination, such as termination of the individual's employment, if applicable, until the licensee receives confirmation or correction of the challenged disposition of an arrest.

6. *Transfer of Criminal History File.* A number of comments were received concerning the transfer of access authorization. In analyzing the comments, it appears that the respondents were confusing the requirements of FBI criminal history checks with the broader requirements

for unescorted access authorization. It is noted that this rule is intended to explicitly address the requirements associated with the FBI criminal history data which is only one element of a background investigation portion of an industry-run access authorization program. The provisions in this rule allow the data in an individual's criminal history file to be transferred to another licensee for consideration in granting unescorted access to the gaining licensee's facility under two conditions: upon the individual's request to re-disseminate the information contained in his/her file, and if, for identification purposes, the gaining licensee verifies information such as name, date of birth, social security number, sex, and other applicable physical characteristics. The proposed rule contained a third conditional provision: that if an individual was terminated in the previous 365 days, the termination had to have been under favorable conditions. However, according to comments by several licensees, the third provision was being interpreted as requiring termination in all cases before the contents of the FBI criminal history file could be transferred. That is, that the individual had to also have been terminated before his/her criminal history file could be transferred. That was not the intent. Staff analysis has concluded that the third conditional provision was unnecessary and accordingly, it has been dropped from the final rule.

In addition, for clarification of § 73.57(f)(5), if the data contained in an individual's criminal history file needs to be transferred to another licensee, a copy of the data should be sent to gaining licensees. The original file should be retained by the original licensee for a one-year retention period upon the individual's termination of employment or denial of unescorted access or access to Safeguards Information at that facility.

Comments were also received requesting that the final rule contain provisions for reinstating an individual who is returning to the same utility and requires unescorted access. To preclude re-fingerprinting an individual who is returning to the same utility, the final rule allows the licensees to use their discretion in not having to re-fingerprint this individual under the following conditions: If the individual's unescorted access authorization under an industry-run program has not been interrupted for a continuous period of more than 365 days and the individual's previous unescorted access was terminated under favorable conditions.

7. *Miscellaneous Issues.* Several miscellaneous issues which did not fit the previous categories were raised by respondents. These are addressed below.

¹ purchased from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. A copy is available for inspection and/or copying for a fee in the NRC Public Document Room, 1717 H Street, NW., Washington, DC 20555.

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The proposed rule required criminal history records to be available onsite for examination by NRC. Several multi-site licensees reported that they maintain centralized records at corporate headquarters and contended that such a requirement would require substantial duplication of facilities and records. Accordingly, the word "onsite" has been deleted from the final rule to allow these licensees the requested flexibility.

Section 73.57(c)(2) of the proposed rule prohibited a licensee from using the FBI information in a manner that would infringe upon an individual's rights under the First Amendment. Comments received on this provision indicated that it is redundant and unnecessary. It was the staff's intent to assure that individuals subject to fingerprinting are protected from misuse of the criminal history records as mandated by Pub. L. 99-399, The Conference Report on H.R. 4151 (published in the Congressional Record on August 12, 1986, p. H-5965) contained legislative history which stated that "... Misuse would include, for example, use of the records to discriminate against minorities or to penalize union members or whistleblowers or to accomplish any other unlawful purpose." The right to privacy is the primary First Amendment right that could be affected by this rule. Under the rule, an individual's right to privacy is protected by the limitations on re-dissemination of personal information contained in the rule itself. Nonetheless, while recognizing that there is some merit in the public comment received, in the interest of emphasizing the importance of concern for individual's rights, the Commission is retaining the reference to the First Amendment.

In addition, the Commission is aware that utilities are already prohibited from discriminating in employment on the basis of race, religion, national origin, sex, or age by Title VII of the Civil Rights Act of 1964 and by the Age Discrimination in Employment Act. Also, utilities which are Government contractors are required to sign an Equal Opportunity Clause in order to assure nondiscrimination for the same reasons. Commenters pointed out that individuals as "whistleblowers" are also protected by section 210 of the Energy Reorganization Act of 1974 and union members are protected under the National Labor Relations Act. However, the rule itself contains no other provisions that would preclude misuse or abuse of the information in those contexts. Accordingly, the remainder of the precautionary statement is also retained.

Commenters expressed concern over limitations contained in § 73.57 (c)(i) and (ii) which prohibit a licensee from basing a final determination to deny an

individual unescorted access to a nuclear power facility or access to Safeguards Information solely upon an arrest more than one year old for which there is no information of the disposition of the case, or upon an arrest that resulted in dismissal on the charge or an acquittal. Commenters stated that it is not uncommon to find a case that had not gone to trial within one year of the date of the arrest. In situations like this, commenters felt that the licensee would be unable to take action if attorneys were employing tactics to delay or avoid trial, or where felony cases were being delayed for various other reasons. Likewise, concern was expressed that career criminals could manipulate the criminal justice system with plea bargaining arrangements and appear to have no serious convictions even though they continuously violate the law. Commenters felt that licensee should be allowed to grant or deny unescorted access to their facilities or access to Safeguards Information based on their own judgment since an individual acquitted of a crime may still have admittedly engaged in conduct which should warrant the denial of unescorted access. In response to the comments received on this provision, the staff reiterates that FBI criminal history data received by the licensee is but one element of background investigations of industry run access authorization programs. The information received by the licensee on an individual's arrest record can be used as a basis for developing additional information which may be used in the determination to grant or deny access. For example, developed character references could confirm that the individual's behavior, as reflected in the arrest record, is not considered desirable by the licensee as suitable for the job.

In analyzing the public comments, the staff felt that the respondents were misinterpreting the word "solely" in the context of the provision. The term "solely" was never intended to imply that the information from the FBI was the only data to be used in determining whether to grant or deny unescorted access or access to Safeguards Information but rather to preclude its misuse (i.e., for discrimination purposes). The results of other elements of industry-run access authorization programs are also taken into account in making the decision. However, if all results are favorable except for an arrest without a disposition on an individual's criminal history record, the licensee cannot deny unescorted access or access to Safeguards Information because of the arrest itself, as stipulated in Pub. L. 99-399.

A number of letters of comment were received requesting additional provisions for exemptions to the rule. The staff has analyzed the various

situations and concluded that certain exemptions are warranted because of the nature or urgency of the action in which access is required, the individuals either have undergone equivalent clearance programs or have been certified by the NRC, or have been ordered access to Safeguards Information pursuant to 10 CFR 2.744. For example, NRC employees and NRC contractors on official agency business have undergone equivalent clearance programs and are certified by the NRC to the licensee. Likewise, individuals employed at a facility who possess "Q", "L", or other active government granted security clearances, and certain State and local government employees have also undergone equivalent clearance programs. Because of the nature or urgency of the action in which access is required, individuals responding to a site emergency and law enforcement personnel acting in an official capacity are exempted.

Under State agreement arrangements, the requirement to provide nuclear material transportation information to designated individuals, and under situations when disclosure is ordered pursuant to § 2.744(e), Safeguards Information is made available on a need to know basis and with the protections specified in § 73.21 to certain individuals. Accordingly, exemptions have been provided for these situations. The exemptions from the provisions of the rule are contained in paragraph (b)(2) of the rule.

Additionally, as a Federal agency, Tennessee Valley Authority (TVA) has long submitted criminal history requests to the FBI in accordance with TVA's security suitability investigations conducted under Executive Order No. 10450. This program is equivalent to the program proposed to the rule. Therefore, TVA will be allowed to continue its program of submitting fingerprint cards directly to the FBI.

Several respondents requested that the NRC bill licensees on a monthly basis for fingerprint cards submitted to the FBI through the NRC.

Analysis by the staff indicated that developing and implementing billing procedures, monitoring receipt of payment, calculating interest on late payments, sending notices of nonpayment and other administrative activities would increase known or estimated agency personnel and interest costs to the Government. NRC has a responsibility under the Deficit Reduction Act of 1984 and 31 CFR Part 206 to develop a collection mechanism that expedites credit and availability of monies to the U.S. Treasury. Accordingly, implementation of a billing and collection system, which unduly increases costs to the Government, solely for the benefit of licensees, is not appropriate.

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The Supplementary Information of the proposed rule suggested that a forwarding letter transmitting the fingerprint cards contain the facility docket number in addition to other requested information. Likewise, the facility docket number needs to be included on each individual fingerprint card in the space marked "Reason Fingerprinted." It was requested by two multi-plant licensees that the requirement for docket numbers be deleted and that the facility name be used in lieu of the docket number to preclude administrative problems. To accommodate this request, licensees may include the facility name in addition to the docket number on the forms.

Although the rule is effective 30 days after publication in the *Federal Register*, licensees wishing to submit fingerprint cards to the FBI through the NRC may do so during this time, and all cards received will be processed commencing on April 8, 1987, in order of receipt.

Environmental Impact: Categorical Exclusion

The NRC has determined that this rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0002.

Regulatory Analysis

The NRC staff has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC 20555. Single copies of the analysis may be obtained from Kristina Jamgochian, Safeguards Reactor Regulatory Requirements Section, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4754.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that if promulgated, this rule will not have a significant economic impact upon a substantial number of small entities. The rule affects licensees who operate

nuclear power plants under 10 CFR Parts 50 and 73. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in section 605(b) of the Regulatory Flexibility Act of 1980, or within the definition of Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121.

Backfit Analysis

As this rulemaking is based upon a legislative mandate, the need to make a backfit decision is unnecessary.

List of Subjects in 10 CFR Part 73

Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 73.

52 FR 7821

Published 3/13/87

10 CFR Part 73

Requirements for Criminal History Checks; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

SUMMARY: This document corrects a final rule amending 10 CFR Part 73 with regard to the implementation of a program for the control and use of criminal history data received from the Federal Bureau of Investigation as part of criminal history checks of individuals granted unescorted access to nuclear power facilities or access to Safeguards Information by nuclear power reactor licensees. This final rule was published on March 2, 1987 (52 FR 6310). This action is necessary in order to make several minor typographical corrections.

FOR FURTHER INFORMATION CONTACT: Kristina Jamgochian, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-427-4754.

In FR Doc. 87-4436, published in the *Federal Register* of Monday, March 2, 1987, make the following corrections:

1. On page 6310, in the second column, in the second complete paragraph under the heading "Summary of Public Comment," beginning in the fourth line, remove the words that read "the date of publication of this notice," and insert in

their place following the word "on", "April 1, 1987."

§ 73.57 [Corrected]

2. On page 6314, in the second column, in the third line of § 73.57(b)(1), the word "the" should read "this", and in the 27th line, the word "result" should read "results".

3. On page 6314, in the third column, in the third line of § 73.57(b)(5), the word "a" should read "an" and the word "permanent" should be removed.

4. On page 6315, in the third column, in § 73.57(f)(3)(ii), in the second line, the word "data" should read "date".

Dated at Washington, DC, this 9th day of March, 1987.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Acting Secretary of the Commission.

52 FR 9649

Published 3/26/87

Effective 3/25/87

10 CFR Parts 40, 70, 73, and 110

Implementation of the Convention on the Physical Protection of Nuclear Material

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to bring them into accord with the Provisions of the Convention on the Physical Protection of Nuclear Material. The amendments will result in strengthened protection of shipments of Convention-defined materials during international transport. The amendments will affect licensees and carriers who import, export, or transport international shipments of Convention-defined materials in four specifically defined situations.

EFFECTIVE DATE: March 25, 1987.

FOR FURTHER INFORMATION CONTACT: William C. Floyd, Division of Safeguards and Transportation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-427-4033.

SUPPLEMENTARY INFORMATION:

Background

On March 3, 1980, the United States signed the Convention on the Physical Protection of Nuclear Material (the Convention) (Exec. H. Senate, 96th Cong., 2d Sess.). The Convention is the result of a U.S. proposal originally made by the Secretary of State in 1974. Its purpose is to provide for the establishment and maintenance of adequate physical security with respect to international shipment of significant quantities of source or special nuclear material. The Senate ratified the

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Convention on July 30, 1981 and the implementing legislation was enacted by the Congress and signed by the President on October 18, 1982 (Pub. L. 97-351, 96 Stat. 1663). The Convention entered into force on February 8, 1987, the thirtieth day following the date on which the twenty-first country formally ratified it. Accordingly, this final rule will be immediately effective on publication in the *Federal Register*.

A review of NRC regulations and procedures disclosed that they are in accord with the Convention except for four specific situations: (1) The physical protection of transient shipments of special nuclear material of moderate and low strategic significance and irradiated reactor fuel; (2) advance notification to the NRC regarding the export of Convention-defined nuclear materials; (3) advance notification and assurance of protection to NRC concerning transient shipments of Convention-defined nuclear material between countries that are not parties to the Convention; and (4) advance notification and assurance of protection to the NRC regarding the importation of Convention-defined nuclear materials from countries that are not parties to the Convention. Convention-defined material includes natural uranium (other than in the form of ore or ore residue) in a quantity exceeding 500 kilograms, plutonium, uranium-233, uranium enriched in uranium-235, and irradiated fuel. A transient shipment is one originating and terminating in foreign countries, that is transported on a vessel or aircraft which stops at a United States port.

On July 14, 1983, the NRC published a *Federal Register* notice (FRN) (43 FR 32182) inviting public comment on a proposed rule that would bring NRC regulations into accord with the Convention in the four situations cited above. The 90-day comment period ended on October 13, 1983.

Five letters of comment were received, each containing several comments and suggestions. A summary of the public comments along with their impact on the regulation was discussed in the March 28, 1985 FRN (50 FR 12221), notice of rulemaking for information only.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval numbers 3150-0002, 3150-0009, and 3150-0020.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final

regulation. The analysis examines the costs and benefits and environmental implications of the regulation. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from William C. Floyd, Division of Safeguards and Transportation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: 301-427-4033.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal Action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The rule would improve the physical protection of nuclear materials during international transport and would result in no negative environmental impacts. The environmental assessment and finding of no significant impact on which this determination is based are part of the Regulatory Analysis prepared in connection with this rulemaking.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The NRC reviewed data on import and export shipments made during the period between December 1, 1983 and February 29, 1984, and found that no small entities in the U.S. were among the importers or exporters. Additionally, public comments did not indicate significant economic impact on a large number of small entities. (One letter of comment is from a company identifying itself as a small entity. The objective of the letter, however, is judged to be to present constructive comment for improving the proposed rule rather than to demonstrate that, because of its size, the company is likely to bear a disproportionate adverse economic impact.) The data reviewed shows no transient shipments of spent fuel or formula quantities of strategic special nuclear material; such shipments are very rare. Currently, there are no reporting requirements for transient shipments of natural uranium or special nuclear material of low or moderate significance. Such shipments, if they are regularly made, are not expected to affect a substantial number of small entities.

List of Subjects

10 CFR Part 40

Government contracts, Hazardous materials—transportation, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 70

Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 73

Hazardous materials—transportation, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 110

Administrative practice and procedure, Classified information, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and 5 U.S.C. 553, the NRC is making effective and republishing the following amendments to Parts 40, 70, 73, and 110 except item 16 which is a revision of Appendix F and item 18, as they appeared on March 28, 1985 at (50 FR 12221).

52 FR 12364
Published 4/16/87
Effective 4/16/87

10 CFR Part 73

Miscellaneous Amendments Concerning Physical Protection of Nuclear Power Plants; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

SUMMARY: This document amends a final rule, published by the Nuclear Regulatory Commission (NRC) in August 1986, which revised 10 CFR Part 73 to provide a more safety-conscious safeguards system while maintaining current levels of protection. This action is necessary to correct the inadvertent deletion of the requirement to consider the central alarm station at nuclear power reactors a vital area, and to inform affected licensees and the public of the inadvertent deletion.

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EFFECTIVE DATE: April 16, 1987.

FOR FURTHER INFORMATION CONTACT: Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4773.

SUPPLEMENTARY INFORMATION: Prior to the publication of the Miscellaneous Amendments as a final rule on August 4, 1986 (51 FR 27817), Nuclear power reactor licensees were required to consider their central alarm stations as vital areas under § 73.55(e)(1). When the Miscellaneous Amendments were first proposed on August 1, 1984 (49 FR 30735), they introduced the new concept of "vital islands." Under that proposed rule, the central alarm station, along with four other areas, was designated as an independent vital island which, in essence, maintained the requirement that the central alarm station be considered vital. Public comment on the proposed rule indicated some confusion over use of the terms "vital islands" and "independent vital islands." Due to these comments and the evolving nature of vital area/island policy at that point in time, the determination was made by the staff to delete these new concepts from the amendments when published as a final rule. In doing so, however, the original requirement to consider the central alarm station a vital area inadvertently was not inserted back into the regulation. The purpose of this notice is to clarify that central alarm station remain a vital area notwithstanding the error in the prior publication. This revision will have no impact on power reactor licensees because previous security plan commitments to protect the central alarm station as vital have been maintained throughout this period.

Because all central alarm stations at nuclear power reactors have been, and continue to be protected as vital areas and because the omission being corrected was inadvertent, notice of proposed rulemaking and public comment thereon is unnecessary for this administrative amendment. Also, for these and additional reasons the NRC finds that good cause exists to waive the 30-day deferred effective date provisions of the Administrative Procedure Act (5 U.S.C. 553(d)). The omission must be corrected immediately to avoid the potential for confusion over the legal requirement for maintaining the vital status of central alarm stations. Therefore, the rule is effective on publication in the Federal Register.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR

51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule contains no information collection or requirements and therefore is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et. seq.).

Regulatory Analysis

No regulatory analysis has been prepared for this final rule because there are anticipated to be no cost or resource impacts to the NRC or affected licensees.

Backfit Analysis

No backfit analysis has been prepared for this final rule because of its administrative nature and recodification of prior commitments.

List of Subjects in 10 CFR Part 73

Hazardous materials-transportation. Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 73.

52 FR 21651
Published 6/9/87
Effective 10/8/87

Changes to Safeguards Reporting Requirements

See Part 70 Statements of Consideration

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

52 FR 32777
Published 8/31/87

10 CFR Part 73

NRC Reporting Requirements for Safeguards Events; Meeting

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of meeting.

SUMMARY: The NRC staff will conduct a meeting to assist affected licensees in their implementation of recently issued revisions to 10 CFR 73.71, "Changes to Safeguards Reporting Requirements,"

which become effective on October 8, 1987.

DATE: September 14, 1987.

ADDRESS: Holiday Inn of Bethesda (Versailles Rooms I and II), 8120 Wisconsin Avenue, Bethesda, MD 20014.

FOR FURTHER INFORMATION CONTACT:

For reactor licensees: Nancy Ervin, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7855; or, for all other affected licensees: Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4773.

SUPPLEMENTARY INFORMATION: The primary purpose of this workshop is to further affected licensees' understanding of the NRC requirements regarding the reporting of safeguards events as described in the recently revised 10 CFR 73.71 (June 9, 1987; 52 FR 21651) and supporting guidance. Licensees most affected by the revision to 10 CFR 73.71 are those subject to §§ 73.20, 73.37, 73.50, 73.55, 73.60 or those possessing strategic special nuclear material and subject to § 73.67. The workshop will serve as a mechanism to address industry concerns and questions on the subject.

In order to allow more efficient use of question sessions, licensees are requested to submit questions of general interest in advance of the workshop to the appropriate contact noted above. In addition, licensees are requested to notify appropriate contacts of plans to attend as seating is limited to 300. The tentative agenda is shown below:

Morning Session

9:30 am Introductory Remarks

10:00-11:00 Revised Reporting Requirements: History, Purpose, and Comparison with Previous Requirements

11:00-11:15 Break

11:15-11:45 Generic Trend Analysis

11:45-1:00 Lunch

Afternoon Session

1:00-2:15 Determining Reportability—One Hour Events (Panel Discussion)

2:15-2:30 Break

2:30-4:00 Determining Reportability—Log Items (Panel Discussion)

4:00-4:15 Closing Remarks.

Persons other than NRC Staff and Licensee Representatives may observe the proceedings but will be permitted to participate in the discussions only as time will allow. Registration will be conducted prior to the meeting. It is anticipated the proceedings of the workshop will be published some time in the future as a guidance document for licensees. Copies of the supporting regulatory guide for this revised rule,

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Regulatory Guide 5.62, "Reporting of Safeguards Events," are being placed in NRC's Public Document Room, 1717 H Street NW., Washington, DC, and each Local Public Document Room throughout the United States for review by interested persons.

Dated at Bethesda, Maryland, this 28th day of August, 1987.

For the Nuclear Regulatory Commission,
Robert A. Erickson,
Chief, Reactor Safeguards Branch, Division of Reactor Inspection and Safeguards, Office of Nuclear Reactor Regulation.

53 FR 403
Published 1/7/88
Effective 2/8/88

10 CFR Part 73

General Criteria for Security Personnel

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations regarding physical fitness qualifications for security personnel. The regulation continues to require annual medical examinations and annual physical fitness testing for guards, armed response personnel, and armed escorts, but the amendment deletes the scheduling requirement that the medical examination be conducted within the 30 days preceding the physical fitness test. The amendment is supported by Commission findings made in response to a petition for rulemaking (PRM-73-6), which was recently partially denied.

EFFECTIVE DATE: February 8, 1988.

FOR FURTHER INFORMATION CONTACT:
Mr. William R. Lahs, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-492-3774.

SUPPLEMENTARY INFORMATION:

Background

The Nuclear Regulatory Commission received a petition for rulemaking (PRM-73-6) dated December 2, 1981, filed by Shaw, Pittman, Potts and Trowbridge on behalf of the Wisconsin Electric Power Company, the Public Service Electric and Gas Company, the Commonwealth Edison Company, the Yankee Atomic Electric Company, the Northern States Power Company, and the Sacramento Municipal Utility District. The petition requested changes in the qualifications for armed security personnel, set out in 10 CFR Part 73, Appendix B, entitled "General Criteria for Security Personnel." Although the

petition was denied in part, as documented in the September 3, 1987 edition of the Federal Register (52 FR 33428), the Commission indicated that it intended to grant that part of the petition that requested deletion of an existing requirement that armed security personnel undergo a medical examination within the 30 days preceding their individual annual physical fitness test. This final rule completes Commission action on PRM-73-6.

Responses to Public Comments on the Petition for Rulemaking

The petition was published for comment in the Federal Register on February 16, 1982 (47 FR 6659). The NRC received 13 comment letters on PRM-73-6. The sources were as follows:

Congress—1
General Public—1
Nuclear Industry—11

The industry comments and the single "general public" comment supported the petition position that the link between the medical examination and the physical fitness test be deleted. These comments typically noted that the requirement for an annual medical examination within the 30 days preceding the physical fitness test is unrelated to the effectiveness of the security force and presents a scheduling nightmare. Rotating shifts, adverse weather conditions, and the availability of trainers/instructors to administer the physical fitness test complicate the scheduling problem. The Congressional commenter cautioned against doing away with security requirements based only on the claim that the regulations are cumbersome.

The changes in Appendix B being implemented through this amendment have taken into account the concerns of all commenters. The amendment leaves in place the requirement that all armed security personnel undergo both annual medical examinations and physical fitness testing. The existing requirements are intended to ensure that guard force personnel are physically able to perform their duties. The Commission also recognizes that to protect the well-being of the security force personnel, prudent practice would dictate that a medical examination be given at some appropriate time prior to physical testing. However, the Commission believes that the exact timing between the medical examination and the physical fitness is primarily a scheduling matter in which the licensee requires discretion for efficient management. The Commission agrees with the petitioners that there is no necessary relationship between this schedule interval and the level of protection being provided. The revised

10 CFR Part 73, Appendix B, paragraph I.C., retitled, "Medical examination and physical fitness qualifications," continues to require a physical fitness test to be preceded by a medical examination as a criteria for establishing employment suitability and qualification. Only the 30-day link between the medical examination and the physical testing has been deleted. In addition, 10 CFR Part 73, Appendix B, paragraph I.E., has been retitled "Physical and medical requalification," and has been modified to clearly specify that, at least every 12 months, guards, armed response personnel, armed escorts, and other armed security force members shall be required to meet the referenced physical requirements and shall be subject to a physical fitness test and a medical examination.

The provisions of this amendment may be adopted through appropriate modifications in the licensee's training and qualifications plan made under the authority of this rule.

Notice and public procedure (i.e., public comment) are unnecessary in view of the public comments already received on the precise issue raised in the petition to which this rulemaking is responding. Accordingly, this amendment is being promulgated as a final rule subject to codification.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval number 3150-0002.

Regulatory Analysis

This final rule amends 10 CFR Part 73 by deleting a requirement which specifies a scheduling link between the medical examination and the physical fitness test to which all armed security personnel are subjected at least every 12 months. The amendment was initiated as a response to a petition for rulemaking (PRM-73-6) dated December 2, 1981, filed by Shaw, Pittman, Potts and Trowbridge on behalf of six utilities operating nuclear power reactors. The amendment is directed at relieving a scheduling problem which has no impact on the effectiveness of the security force. The requirement that, at least

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every 12 months, all armed security personnel be subjected to both a medical examination and a physical fitness test remains unchanged. Only the requirement that the medical examination precede the physical fitness test by 30 days or less is being deleted.

The amendment results in no impact on NRC resources and a cost savings to those licensees adversely impacted by the current requirement that all armed security personnel be subjected to an annual physical fitness test which must be preceded within 30 days by a medical examination.

There are no apparent conflicts or overlaps with other NRC regulations or policies nor with other agencies' regulations or policies. The amendment is intended to ensure effective security force performance without imposing an unnecessary burden on licensees.

Backfit Analysis

This final rule pertains to the training and qualifications plan associated with the operation of a nuclear power reactor. The objective of the modification is to eliminate a requirement which specifies a scheduling link between the medical examination and the physical fitness test to which all armed security personnel are subjected. The current requirement that both the medical examination and physical fitness test be administered at least every 12 months remains unchanged. As a result, the effectiveness of the security force is unaffected and no change is involved in the risk to the public or facility employees. No action by licensees is needed in order to comply with the rule. However, if the current link between the medical examination and physical fitness test presents an unnecessary scheduling problem, appropriate changes may be made to the licensee's training and qualifications plan under the authority of this rule.

The final rule involves no installation or continuing costs to the licensee, potentially relieves an unnecessary scheduling burden, and imposes no new resource burden on the NRC.

List of Subjects in 10 CFR Part 73

Hazardous materials-transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the supplementary information and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is amending Appendix B to 10 CFR Part 73 as follows.

53 FR 3861
Published 2/10/88
Effective 2/10/88

Change of Region I Address

See Part 1 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI and GPA

See Part 30 Statements of Consideration

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear Reactor Regulation

See Part 19 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 23382
Published 6/22/88
Effective 7/26/88

Retention Periods for Records; Correction

See Part 30 Statements of Consideration

53 FR 31651
Published 8/19/88
Effective 9/19/88

Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

See Part 72 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

53 FR 45447
Published 11/10/88
Effective 12/12/88.

Safeguards Requirements for Fuel Facilities Possessing Formula Quantities of Strategic Special Nuclear Material

Part 2 Statements of Consideration

53 FR 52993
Published 12/30/88
Effective 12/30/88

Reorganization of Functions Within the Office of Administration and Resources Management and Minor Corrective Amendments

See Part 1 Statements of Consideration

54 FR 17703
Published 4/25/89
Effective 5/25/89

10 CFR Part 73

Access to Safeguards Information

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for access to Safeguards Information to be consistent with "The Omnibus Diplomatic Security and Anti-Terrorism Act of 1986," which requires nuclear power reactor applicants and licensees to conduct Federal Bureau of Investigation (FBI) criminal history checks of certain individuals with access to information protected as Safeguards Information. This action is necessary to ensure that all applicable NRC regulations reflect this requirement.

EFFECTIVE DATE: May 25, 1989.

FOR FURTHER INFORMATION CONTACT: M.L. Au, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3749.

SUPPLEMENTARY INFORMATION: Section 606 of Pub. L. 99-399, "The Omnibus Diplomatic Security and Anti-Terrorism Act of 1986," requires nuclear power reactor applicants and licensees to conduct criminal history checks through the use of FBI criminal history data on individuals with access to Safeguards Information. The Act, signed by President Reagan on August 27, 1986, required the NRC to issue regulations to establish conditions for the use and control of the criminal history data received from the FBI. NRC published its implementing regulations March 2, 1987, as a new § 73.57 to 10 CFR Part 73. NRC requirements for the protection of Safeguards Information, 10 CFR 73.21, were published October 22, 1981, prior to enactment of the legislation. This technical amendment conforms 10 CFR 73.21 with the provisions of 10 CFR 73.57 which require certain individuals to undergo FBI criminal history checks prior to gaining access to Safeguards Information. Individuals who are exempted from fingerprinting under 10 CFR 73.57 will continue to be exempt under this rule.

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Because this amendment is of a technical nature only, and does not add a new requirement, or revoke any existing regulation, good cause exists for finding that notice of proposed rulemaking and public procedure is unnecessary until Title 5 U.S.C. section 553. Accordingly, the amendment is being published for codification as a final rule.

Environmental Impact: Categorical Exclusion

The NRC has determined that this regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore neither an environmental impact statement nor environmental assessment has been prepared for this regulation.

Paperwork Reduction Act Statement

This final rule does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0002.

Regulatory Analysis

No regulatory analysis has been prepared for this rule because the action represents an administrative cross-referencing between two existing sections in the regulations.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule, because these amendments are mandated by Pub. L. 99-399.

List of Subjects in 10 CFR Part 73

Hazardous materials-transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 73.

54 FR 42287
Published 10/16/89
Effective 11/11/89

Change in Commercial Telephone
Number for Region III Office

See Part 20 Statements of Consideration

55 FR 3039
Published 1/30/90.
Effective 3/1/90

10 CFR Part 73

RIN 3150-AD52

Fingerprint Cards; Increase in Fee

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect an administrative change pertaining to an increase in the fee that is charged for processing nuclear power plant fingerprint cards which are associated with granting unescorted access to an operating reactor site, or access to Safeguards Information. This amendment is necessary to reflect a fee schedule change imposed by the FBI.

EFFECTIVE DATE: March 1, 1990.

FOR FURTHER INFORMATION CONTACT: R.B. Manili, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-0940.

SUPPLEMENTARY INFORMATION:

Background

On November 30, 1989, the FBI's Identification Division notified the Nuclear Regulatory Commission that there would be an increase of six dollars in the user-fee charge for fingerprint cards submitted by the NRC effective March 1, 1990. The increase from \$14 to \$20 in the user fee charged NRC by the FBI was necessitated by the costs of operating the FBI's central fingerprint repository; despite recent major automation enhancements, the operation of the repository is still a manpower intensive system. Congress reduced the FY 1990 base funding for salaries and expense of the FBI in anticipation of the collection of the user fees. The amended rule is needed to adjust the fee each licensee pays for the FBI criminal history checks so that the NRC can process and submit the fingerprint cards in conjunction with the effective date of the FBI's rate change. The NRC holdback of one dollar from the fee paid by licensees remains unchanged.

Because this amendment solely deals with a fee schedule change ordered by the FBI, the notice and comment provisions of the Administrative Procedure Act are impracticable and unnecessary. This amendment is effective 30 days after publication in the Federal Register.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described

in a categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget under control number 3150-0002.

Backfit Analysis

The backfit rule, 10 CFR 50.109, does not apply to the action taken in this final rulemaking. Therefore, no backfit analysis has been prepared.

List of Subjects in 10 CFR Part 73

Access authorization, Exports, Hazardous materials transportation, Imports, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Physical protection, Reporting and recordkeeping requirements, Safeguards information, Security measures, Special nuclear material, Transportation, Violations.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 73.

55 FR 35563
Published 8/31/90.
Effective 10/1/90

10 CFR Part 73

RIN 3150-AD72

Fingerprint Cards: Increase in Fee

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect an administrative change pertaining to an increase in the fee that is charged for processing nuclear power plant fingerprint cards which are associated with granting unescorted access to an operating reactor site, or access to Safeguards Information. This amendment is necessary to reflect a fee schedule change imposed by the FBI.

EFFECTIVE DATE: October 1, 1990.

FOR FURTHER INFORMATION CONTACT: R.B. Manili, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-0940.

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SUPPLEMENTARY INFORMATION:

Background

On June 29, 1990, the FBI's Identification Division notified the Nuclear Regulatory Commission that there would be an increase of three dollars in the use-fee charge for fingerprint cards submitted by the NRC effective October 1, 1990. The increase from \$20 to \$23 in the user-fee charged NRC by the FBI was necessitated primarily by the rising personnel costs of operating the FBI's central fingerprint repository. The amended rule is needed to adjust the fee each licensee pays for the FBI criminal history checks so that the NRC can process and submit the fingerprint cards in conjunction with the effective date of the FBI's rate change. The NRC handling charge is included in the new \$23.00 charge.

Because this amendment solely deals with a fee schedule change ordered by the FBI, the notice and comment provisions of the Administrative Procedure Act are impracticable and unnecessary. This amendment is effective 30 days after publication in the **Federal Register**. The increased fee applied to applications received by the NRC on or after October 1, 1990.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in a categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environment assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget under control number 3150-0002.

Backfit Analysis

The Backfit rule, 10 CFR 50.109, does not apply to the action taken in this final rulemaking. Therefore, no backfit analysis has been prepared.

List of Subjects in 10 CFR Part 73

Hazardous materials-transportation, Incorporated by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553,

the NRC is adopting the following amendment to 10 CFR part 73.

55 FR 51401
Published 12/14/90.

Miscellaneous Amendments;
Correction

See Part 2 Statements of Consideration

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that unescorted access to protected and vital areas will be given to individuals whose background, psychological profile, or changes in behavioral pattern indicate a potential for committing acts that are, or could be, detrimental to the public health and safety will be minimized. These amendments, which will affect all nuclear power plant licensees, will result in high assurance that personnel granted unescorted access to protected and vital areas of nuclear power plants are trustworthy and reliable and do not pose a threat to commit radiological sabotage.

EFFECTIVE DATE: May 28, 1991 except for the information collection requirements contained in §§ 73.56(a) (1), (2), and (3), (b) (1) and (2), (c), (d), (e), (f) (1) and (2), and (h)(1). These information collection requirements will become effective upon OMB approval. The NRC will publish a notice of the effective date in the *Federal Register*.

ADDRESSES: The regulatory guide associated with the rule and the final regulatory analysis which includes cost-benefit analysis for the rule are available for inspection at the Commission's Public Document Room, 2120 L Street NW., (Lower Level), Washington, DC 20037. Requests for single copies of regulatory guides or for placement on an automatic distribution list for single copies of future draft guides in specific divisions should be made in writing to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Distribution Section, Division of Information Support Services. Telephone requests cannot be accommodated. Regulatory guides are not copyrighted, and Commission approval is not required to reproduce them.

FOR FURTHER INFORMATION CONTACT: Dr. Sandra D. Frattali, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3773; for information of a legal nature, contact Robert L. Fonner, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-1643.

SUPPLEMENTARY INFORMATION:

Background

On August 1, 1984 (49 FR 30726), the Commission published, for public comment, a proposed rule to require a program for unescorted access authorization at nuclear power plants. Major elements of the proposed program included the requirement for background investigation, psychological assessment, and behavioral observation. A total of 142 comments were received that included comments from industry groups. These groups, including the Nuclear Management and Resources

Council (NUMARC), the Edison Electric Institute, and later, the Atomic Industrial Forum, and KMC, Inc., suggested that the rule be withdrawn and proposed that it be replaced with an industry-developed initiative to commit voluntarily to the guidelines developed by NUMARC for an access authorization program. The response to these comments was provided in NRC staff paper SECY 85-381 which is available to the public as part of the regulatory history for the Insider Safeguards Rules at the Commission's Public Document Room, 2120 L Street, NW., (Lower Level), Washington, DC 20037.

As a result of these comments, the Commission directed the staff to develop, for Commission approval, a policy statement endorsing the guidelines entitled "Industry Guidelines for Nuclear Power Plant Access Authorization Programs" (hereafter referred to as "the Guidelines").

On March 9, 1988 (53 FR 7534), the Commission published a policy statement which proposed endorsing Revision 8 of these Guidelines. The *Federal Register* notice specifically invited public comment regarding the policy statement vs. rulemaking option.

The comment period was scheduled to expire on May 9, 1988. However, comments were received subsequent to that date and were also considered. In all, 71 letters of comment were received representing 68 different individuals or groups. The Commenters consisted of 14 unions, 39 utilities and utility organizations, 5 contractors, 5 commenters with credentials in psychology, 3 individuals, 1 State government agency, and 1 member of Congress. The comments addressed both the policy statement and the Guidelines.

Based upon the comments as a whole, there appeared to be broad public acceptance for the general concept of a standardized access authorization program at nuclear power plants. Of the 14 union commenters, the 13 who addressed the issue of policy statement versus rule favored a rule, and 1 expressed no preference. Of the 39 utilities and utility organizations, 37 favored the policy statement, 1 favored the rule, and 1 expressed no preference. Of the five contractors responding, three favored a policy statement, and two expressed no preference. Of the 5 commenters with credentials in psychology, 2 favored a policy statement, 2 favored a rule (one of these is also an industry contractor), and one expressed no preference. Of the three individuals who indicated no affiliation, 2 favored a rule, and 1 favored a policy statement. Neither the comments of the member of Congress, nor the State

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See 56 FR 47671 published 9/20/91
Information collection requirements
effective 7/1/91

10 CFR Part 73

RIN 3150-AA90

Access Authorization Program for Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to require an access authorization program for individuals requiring unescorted access to protected and vital areas at nuclear power plants. These amendments require an access authorization program that consists of three elements: Background investigation, psychological assessment, and behavioral observation. The required elements of the program have long been practiced in varying degree by most licensees as part of their Physical Security Plans. The Commission is adopting this final rule to provide increased assurance that the likelihood

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government agency addressed this question.

Most of those who preferred a rule over a policy statement generally did not take issue with elements of the Guidelines but considered them so prescriptive as to be tantamount to a rule. Comments were made to the effect that regulation by rulemaking was preferable to regulation by policy statement, particularly where there was the possibility of conflict with State laws.

The rulemaking option was also preferred because (1) a regulation would have the advantage of providing for the kind of direct oversight the NRC has over other aspects of reactor safeguards (physical protection, fitness for duty, guard training, and contingency plans), and (2) a regulation would ensure a well-defined mechanism for the NRC to correct deficiencies promptly and effectively.

Implicit in the comments of those who preferred the policy statement option was the importance of supporting industry initiatives and industry-developed programs and minimizing regulatory interference in issues they don't believe have a significant impact on public health and safety.

The Commission decided to proceed with a final rule and on April 19, 1989, the NRC staff was directed to prepare a final rule to require access authorization programs at nuclear power plants, which would specify the major attributes required of the program. The Commission also directed that a regulatory guide accompany the rule. The regulatory guide would endorse the latest revision of NUMARC Guidelines, with appropriate exceptions, as one acceptable means of complying with the rule.

Rationale for Rulemaking

The Commission recognizes the need for an effective access authorization program with appropriate oversight that is implemented throughout the industry, a position strongly supported by the public comments. The implementation of the access authorization rule will increase the assurance that only reliable and trustworthy individuals will have unescorted access to nuclear power plants. The present rulemaking and associated regulatory guide will specifically provide increased assurance that individuals granted unescorted access to protected and vital areas are trustworthy and reliable and do not pose a threat to commit radiological sabotage by:

1. Establishing minimum requirements for access authorization programs in an enforceable manner.

2. Ensuring that licensees not implementing such minimum requirements improve their programs.

3. Providing assurance that those portions of voluntary and improved programs developed and implemented in anticipation of regulatory action which are consistent with the rule are not degraded for the lifetime of the plant.

The access authorization rule requires each licensee to establish and maintain a program designed to minimize the probability of authorizing unescorted access to protected vital areas for employees whose background, psychological profile, or changes in behavioral patterns indicate a potential for committing acts that are, or could be, detrimental to the public health and safety. The main features of the licensee's program must include:

1. The background investigation designed to identify past actions which would call into question an individual's trustworthiness and reliability to be permitted unescorted access to a protected or vital area of a nuclear power reactor.

2. The psychological assessment designed to evaluate the possible impact of any noted psychological characteristics which may have a bearing on trustworthiness and reliability.

3. Behavioral observation designed to detect individual behavioral changes which, if left unattended, could lead to acts detrimental to the public health and safety.

These three elements of the unescorted access authorization program are not separate, stand-alone elements. Rather, they are mutually reinforcing segments of the overall program. The information developed in any one of these facets is combined with data from the other two to provide the best possible evaluation of an individual's trustworthiness and reliability. Any complete evaluation of an individual satisfies all three elements of the program by reviewing the relevant features of the past, examining the current psychological state, and then verifying the continued trustworthiness and reliability through observation. Together, the synergism of these three elements provides the strength and value of the unescorted access authorization program and results in increased protection for the public health and safety. Additionally, the rule provides for grand-fathering of existing access authorization, temporary and reinstated access authorization, and transfer of access authorization. Further the rule allows relaxation of access requirements with appropriate compensatory measures during periods

of cold shutdown. The rule also provides for a review procedure when denying or revoking access authorization.

The rule is accompanied by a regulatory guide that describes a program acceptable to the NRC for complying with the requirements of the rule. The regulatory guide endorses, with specific exceptions, "Industry Guidelines for Nuclear Power Plant Access Authorization Programs, Revision 89-01, August 1989," which is provided as an appendix to the regulatory guide. Exceptions to the Guidelines concern the review procedure, and grandfathering.

Licensees will be required to incorporate an access authorization program into their NRC approved Physical Security Plan on the schedule provided for by the regulation. Appropriate revisions to the Physical Security Plan, for example, a commitment to follow and implement the guidance contained in the regulatory guide, will be implemented under the provisions of 10 CFR 50.54(p)(2).

As has already been pointed out, the elements of the access authorization program have been published for public comment twice, once in 1984 in the proposed rule, and once in 1988 in the Guidelines, Revision 8, which were included as an appendix to the NRC proposed policy statement. Extensive public comments were received on both occasions. The attributes of the access authorization program being promulgated in the final rule and the program endorsed by the associated regulatory guide are the direct results of the extensive public comments on the proposed rule and the proposed policy statement. It is noted that in requesting comment on the proposed policy statement the Commission did not withdraw the proposed rule, but deliberately left it in place as a viable option. The complete response to the public comments made in 1984 is included in NRC Staff paper SECY 85-381 in the Insider Safeguards Rules regulatory history which is available to the public in the Commission's Public Document Room.

The proposed rule, published in 1984, included the requirement for a separate Access Authorization Plan. Because licensees' Physical Security Plans currently include an access authorization program, a requirement for a separate plan is now deemed unnecessary. The access authorization program specified in this rulemaking and its associated regulatory guide will be implemented as part of the licensees' Physical Security Plan. This change, which is administrative in nature, will

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also minimize the impact and costs both in funds and manpower to the utilities and the NRC in implementing this program.

Comments in response to the proposed policy statement published in 1988 were received on both general issues and the access authorization program put forward in the Guidelines. The public comments concerning the rule vs. policy statement option have been addressed earlier in the text. Because it is the Commission's intention to publish a regulatory guide endorsing the Guidelines as one means of complying with the rule, those comments concerning the Guidelines are addressed below in this context. The public comments made in 1984 which are pertinent to the current rule are also included. These public comments were available to NUMARC, who made changes to Revision 8 of the Guidelines as a result. The regulatory guide endorses, with exceptions, this revision which is identified as 89-01, August 1989.

The Access Authorization Program

A discussion of the access authorization program which includes an evaluation and response to public comments follows:

I. Attributes.

- I.1 Background Investigation.
- I.2 Psychological Assessment.
- I.3 Behavioral Observation.
- II. Exceptions to the NUMARC Guidelines.
- II.1 Review Procedure.
- II.2 Grandfathering.
- III. Other Provisions.
- III.1 Evaluation Criteria for Unescorted Access.
- III.2 Temporary Unescorted Access Authorization.
- III.3 Transfer and Reinstatement of Unescorted Access.
- III.4 Exemptions.
- III.5 Contractor and Vendor Requirements.
- III.6 Audits.
- III.7 Access Authorization During Cold Shutdown.
- III.8 Records and Protection of Information.
- IV. General.
- IV.1 Relationship to Fitness for Duty.
- IV.2 Standardization of Requirements.
- IV.3 Failure to Include the Bargaining Unit.
- IV.4 Responsibility for Revisions to the Guidelines.

I. Attributes

The unescorted access authorization program includes a background investigation, psychological assessment, and behavioral observation. The background investigation and the psychological assessment are designed to identify past actions or psychological characteristics that would call into question an individual's trustworthiness and reliability to be permitted

unescorted access within a protected or vital area of a nuclear power reactor. Behavioral observation is designed to detect individual behavior or behavioral changes within the context of the job environment which if left unattended could lead to acts detrimental to the public health and safety.

I.1 Background Investigation

Many comments were made concerning the difficulties involved in obtaining all the information required for the background investigation. The commenters believe that specific language should be added to the Guidelines so that a utility need only make a reasonable attempt to address the applicant's employment history, education history, credit history, criminal history, military service, and character and reputation. The Commission believes that the language in the Guidelines is adequate to assure that "best efforts" are made in this regard.

(a) Employment History. A number of commenters commented that there are some instances in which no matter how much effort is expended, the information needed for the employment history is not obtainable because the previous employer will not release it, cannot release it, is out of business, or did not keep records on former employees. Particularly with respect to a former employee's disciplinary history, commenters pointed out that many corporations will not or cannot furnish reasons for termination or other qualitative information to a prospective employer, even with written authorization of the subject individual to do so. In their experience former and present employers refuse to divulge this type of information because of fear of litigation by the applicant. For this reason they believe that the Guidelines should include a clause relieving the licensee of this burden if a good faith attempt has been made to obtain the data and that the utility be given the right to determine whether or not it has sufficient information to make a reasoned decision to grant access authorization. Specific language concerning what can be done in this case has been added to the Guidelines by NUMARC. Moreover, the Commission must be satisfied that the utility has made a good faith attempt to obtain records and has sufficient information to make a decision. Specific language as to how to document these attempts has also been added to the Guidelines.

One commenter stated that the use of disciplinary history was questionable at best and should be severely restricted.

The commenter believed this information was very subjective and highly dependent on the person using it and, as such, served no useful purpose. The Commission does not agree and believes that this information is a useful input to the total process of deciding a potential employee's reliability and trustworthiness.

(b) Educational History. Several commenters commented that verification of educational history should not be required on positions that do not require education, such as unskilled labor. One commenter stated education not required for employment had no value and therefore, did not need to be verified. Another set of commenters stated that this section should be limited to confirming enrollment in degree programs because of the unnecessary burden required to verify every single course an individual might have taken. The Commission believes that all claimed education during the preceding 5-year period should be verified with the objective, in this program, of establishing whether any significant false statements have been made, and the provision has been retained in the Guidelines.

(c) Criminal History. One commenter requested that contractors and vendors be allowed to use the program for the FBI criminal history check specified in 10 CFR 73.57 on an equal basis with part 50 licensees. The Commission notes that this is not possible because the authority for 10 CFR 73.57 is derived from Public law 99-399, "The Omnibus Diplomatic and Anti-Terrorism Act of 1986" which limited the program to nuclear power reactor licensees. Only utility licensees can request criminal history checks through the NRC.

Many commenters noted that because individuals with a Q clearance are exempt from fingerprinting in accordance with 10 CFR 73.57(b)(2), the same individuals should be exempt from the criminal history check portion of the background investigation. The Commission notes that individuals with a Q or L clearance have been fingerprinted and have had a criminal history check. NUMARC added the language exempting Q cleared individuals from the criminal history check to the Guidelines although a specific exemption is unnecessary because the exemption already exists under 10 CFR 73.57(b)(2). The Guidelines specify that the criminal history record check be through the Federal Bureau of Investigation in accordance with NRC regulations. Comments were received identifying that in some cases the criminal history records of the State or

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local authorities were more complete and a check of these records should also be performed in those cases. The comment was made that some licensees who were presently checking State and local criminal records might choose not to make these checks after the rule was implemented. The Commission considers that criminal history records checks through the Federal Bureau of Investigation, in the context of the complete access authorization program, is the best overall approach to check criminal history and that it would be impractical, through rulemaking, to specify case by case variances to this approach. Licensees would not be precluded from including in their program, checks of State and local criminal records.

(d) Military Service. Many commenters stated that, because all United States military personnel are provided with an original DD214 upon discharge from the service, this form should be sufficient for verification of military service. The Commission does not agree with the comments that it is relatively easy to determine whether this form has been altered. Verification from the National Personal Record Center (NPRC) is appropriate as provided for in the Guidelines. Others expressed concern that the NPRC would be unable to supply necessary information concerning military service within the 180 days allowed for interim access. They believe the 180-day limitation for this section should be removed as it is not crucial since the other elements of the program will have been met. If the 180 days is not sufficient for response, an additional exception can be given under conditions provided for in the Guidelines.

The Guidelines discuss confirmation of military service specifically with regard to service in the United States military. This is not to be interpreted as meaning that military service for a foreign government does not have to be verified. A good faith attempt to verify any claimed military service for a foreign government is part of the background investigation.

(e) Character and Reputation. One commenter believed that the phrases "susceptibility to coercion," and "any other conduct relating to an applicant's trustworthiness or reliability to discharge job duties within the environment of a nuclear power plant," in the Guidelines have unlimited interpretation, and as such, are not useful in evaluating character. The Commission does not agree and believes these are useful elements in evaluations. Another commenter stated that to

improve the quality and uniformity of the controlled substance evaluation, a chemical test for illegal drug usage should be specified. This is an element of the Fitness for Duty rulemaking, not the Access Authorization Program.

(f) Credit Check. Comments were made that credit, or lack of credit, should not be a factor in granting unescorted access. One utility commenter believes that this requirement is of very little benefit in evaluating an individual's reliability and trustworthiness. This utility said it would find it difficult to disallow unescorted access to an individual with no criminal history record who was a poor credit risk. Further, a comment was made that a financial expert would be required to determine whether an individual was, in fact, in sufficient financial difficulty to believe that he or she would be subject to coercion. Another commenter commented that this section did not provide guidance as to what credit history information would constitute grounds to deny access. In addition, other commenters commented that criteria to evaluate the information received from the credit check would be difficult to establish, and the licensee would have to be very careful about basing decisions affecting employment on credit information. They recommended that, if a credit check is considered necessary at all, it should be limited to current credit status. Still others pointed out that this section did not state what period of time the credit check should include, either five years or since the eighteenth birthday. The Commission concludes that it is appropriate to continue to include a credit check in the background investigation, because the Commission believes that a higher degree of assurance is obtained that applicants for unescorted access to nuclear power reactors are reliable, trustworthy and do not now have and have not had in the recent past any significant financial problems which would make them susceptible to pressures, blackmail or coercion to commit acts that might result in radiological sabotage. Therefore, the Commission believes that a credit check does have value within the total access authorization process but that it should not, by itself, be used to deny access authorization. Limiting the check to the current credit status is not considered sufficient. Past credit history is also considered as yet one more piece of useful information in making an assessment regarding financial problems. If a credit bureau check does not reveal the requested information, the Guidelines require the additional step of

contacting the personal credit references listed by the applicant or developed by other contacts.

1.2 Psychological Assessment

When the proposed rule was published in 1984, over 60 letters of comment were received on this subject, the majority of which came from behavioral science firms, individual psychologists and psychiatrists, and a number from members of the academic community. When the proposed policy statement was published in 1988, there were only six commenters who addressed this subject specifically, of whom five had credentials in psychology. Almost all of these commenters supported the use of psychological assessment as an important screening tool. In 1984, a substantial number of comments were also received from licensees and industry trade groups. The large majority of these comments also supported psychological assessment. However, not all thought it should be included as a regulatory requirement. A minority of commenters did not support the use of psychological assessment as a screening tool. Comments received from the National Institute of Mental Health (NIMH), Department of Health and Human Services noted that psychological assessment could provide some useful information about the emotional stability of persons given access to a nuclear power plant environment but noted this type of testing has questionable predictive value. The Commission agrees and for this specific reason has proposed a three component screening program consisting of investigation of an individual's past, assessment of the individual's current psychological state, and behavioral observation in the work environment to detect changes in the individual's behavior. The Commission support for the inclusion of psychological assessment as a required component of the access authorization program takes into account the consensus received from the professional community and the fact that it is a component of the access authorization program in both ANSI 18.17 and its revision, ANSI 3.3.

After much deliberation by the Commission, the proposed rule, published in 1984, included psychological assessment. The Commission expressed particular interest in receiving public response to eleven questions concerning this issue that were set forth in the supplementary information section of the proposed rule. A brief summary of public response to each question is provided in NRC staff

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paper SECY 85-381. A detailed analysis of public responses received for these questions was also prepared and may be examined in the Commission's Public Document Room. The results of these public responses support the Commission position concerning the inclusion of psychological assessment in an access authorization program.

This rule requires that a psychological assessment be conducted according to professionally acceptable procedures and practices. The NUMARC Guidelines do so in that they require a reliable written personality test or any other professionally accepted clinical evaluation procedure with the results of the test or procedure being evaluated by a qualified, and if applicable, licensed psychiatrist or psychologist.

The proposed policy statement generated comments from 5 commenters with psychological credentials, all of whom supported the concept of psychological assessment. One of them did give examples of what he considered to be abuses he had observed at specific NRC licensed facilities and was concerned that the program should be careful to protect the rights of the individuals involved. The rule does require a review procedure and protection of information.

With regard to the value of psychological testing and evaluation, these commenters supported the concept of generally accepted tests properly administered as a tool in the clearance process. The Commission agrees that no person should normally be denied access solely on the basis of a psychological test or tests. Any test must be regarded as a screening instrument with all anomalies being resolved according to professionally accepted procedures and practices.

Comments made on both the proposed rule and proposed policy statement indicated that while the psychological test used is required to " * * * have been proven to be valid * * *," no written tests have been validated for the nuclear environment. The Commission agrees, and the rule no longer requires a test. The Guidelines, however, allow the use of tests designed by the licensee to assess the applicant's reliability and trustworthiness as part of the psychological assessment. If the testing indicates that further evaluation needs to be made, the assessment will be complemented by an evaluation by a qualified and, if applicable, licensed psychologist or psychiatrist.

One comment on the Guidelines, Revision 8, recommended that medical personnel be permitted to perform the psychological assessment function, because some States permit licensed

medical personnel, other than psychologists or psychiatrists, to perform psychological assessments. However, by far the greatest number of comments on this issue indicated that the Guidelines should be more restrictive, rather than less, in determining who should perform psychological assessments. They supported limiting those qualified to evaluate results of psychological assessments to board certified psychiatrists or psychologists, not simply medical personnel or uncertified psychologists. Their belief was that the view of other psychiatrists and psychologists, which is required for board certification, would give employees more protection against faulty psychological assessments. This could prevent a potentially unjust loss of employment. The Commission agrees with the conservative position reflected in the Guidelines. The comment from a member of Congress also supported the continued use of qualified psychologists as well as psychiatrists.

One commenter stated a particular psychological test should be specified, and it should be the Minnesota Multiphasic Personality Inventory (MMPI). It is not the intent of the Commission to recommend a particular test. Another commenter said that a preferred screening program should use a variety of tests, each of which should meet American Psychological Association standards or their equivalent. The same commenter who recommended a variety of tests cautioned the industry to note that reliability and trustworthiness are difficult traits to assess and are not readily measured by any single test or evaluative tool. It is up to the utilities who use psychological testing to assure that any test or tests used are appropriate in accordance with the Guidelines.

The psychologists who commented believed that a proper screening program should include a clinical interview for each person screened, but agreed that interviewing by exception may represent a reasonable compromise between thoroughness and cost. The Commission agrees and this is the approach taken in the Guidelines.

One psychologist commented that it is important to ensure that a utility company is not deprived of highly competent personnel who, in fact, are emotionally stable. In his opinion, the MMPI and a one hour interview did not constitute a thorough psychological assessment. He believes a noncertification decision must be viewed as a tentative one that should be reviewed by another qualified

psychologist or psychiatrist, not by management. It is the practice of the utilities to have a second professional opinion, but the Commission believes that the final decision should be made by management.

One commenter proposed that several levels of access authorization should be specified based on job category or that a reevaluation of access authorization was necessary when an employee receives a substantial promotion. The commenter thought it unrealistic to believe that the same emotional stability criteria could be used in evaluating all employees at all levels of employment. The Commission believes that while this may be a valid point, it is impracticable to require several levels of psychological testing. The Commission believes that the behavioral observation program sufficiently provides ongoing assurance of stability after promotion.

Several commenters pointed out that after beginning the initial screening evaluation of an individual the utility may terminate the process. Clarification in the language of the Guidelines concerning this was requested. NUMARC has provided clarification in the current revision of the Guidelines, Revision 89-01, August 1989.

1.3 Behavioral Observation

Many commenters endorsed the principal of a behavioral observation program which in the Guidelines is referred to as a "continual behavioral observation program." Only one commenter strongly objected to the behavioral observation program stating that it could easily be subject to abuse, making amateur psychologists out of supervisors or others with no background or training in psychology. Several comments indicated that only supervisors should be the observers and that they need to be provided with proper training, including refresher training, in order to be effective. While the Commission agrees that supervisors are not psychologists, the behavioral observation program is necessary. The Commission believes that with training, as provided for by the Guidelines, supervisors can be good observers. Furthermore, the final decision concerning access authorization will be made not by the supervisor but by higher level management in conjunction with a qualified psychologist or psychiatrist if a new psychological assessment is made.

Other commenters expressed the opinion that the behavioral observation program would not be useful for temporary employees as there is not enough continuity to provide meaningful

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observation. These commenters wanted the policy to clearly permit the utility to use a contractor's or vendor's behavioral observation program. The Commission believes that the behavioral observation program is useful in detecting long term patterns and impairments, as well as in evaluating recent behavior changes, and therefore, it is useful. The Commission believes that the details of how this program is implemented can be left to the discretion of the utility whose responsibility it is to determine whether to grant the unescorted access.

Finally, one commenter commented that the requirements that the person having unescorted access authorization must be notified of his/her responsibility to report any arrest that may impact upon his/her trustworthiness may not be legal. In addition, the commenter commented that, as worded, this section also implies that the individual has the responsibility of determining whether the arrest impacts upon his/her own trustworthiness. The Commission notes, however, that, as a condition of employment, requiring reporting of arrests is not unusual, and this requirement is retained in the program. After the arrest is reported, it will be evaluated as to how it will affect the individual's continued access authorization.

II. Exceptions to the NUMARC Guidelines

The rule explicitly differs from the Guidelines in two areas: The review procedure, and the grandfathering of existing access authorizations. In these instances the rule overrides the provisions of the Guidelines as recognized in the regulatory guide.

II.1 Review Procedure

In the comments on the proposed policy statement, concern was expressed that the review procedure required by the Guidelines did not sufficiently protect the worker's interests. The review (appeal) procedure included in the proposed rule was preferred. The language of the Guidelines in Revision 8, which was published with the proposed policy statement, provided for a minimal review procedure or any "alternative process which is independent and impartial." It should be noted that the Commission never intended that any review procedure that already exists in a bargaining agreement be abandoned. The current version of the Guidelines, Revision 89-01, August 1989, does clarify this.

However, the Commission has decided to retain the requirement for the review procedure in the rule itself. The review procedure in the Guidelines extends only to "permanent employees of the utility." The rule requires licensees to provide, at the request of the affected employee, a procedure for the review of a denial or revocation of access authorization which adversely affects employment of a permanent, as well as temporary, employee of the licensee, contractor, or vendor. The procedure must provide the individual information on the grounds for the denial or revocation and an opportunity for an objective review of the information in which the denial or revocation was based. However, unescorted access may not be granted during the review process.

A similar review procedure that was included in the proposed rule elicited several strong comments from electrical generating utilities with nuclear power reactors. The comments were uniformly negative, and made three main points: (1) The Commission has no authority to promulgate a review requirement in conjunction with the access authorization rule, (2) the review requirement is not necessary because aggrieved employees have other recourse under existing law, and (3) the review procedure intrudes upon licensee's management prerogatives. Most of the utilities simply stated their objections without elaboration. Edison Electric Institute, on the other hand, submitted an extensive brief in support of the utilities' position.

The Edison Electric Institute brief relied principally upon *Jackson v. Metropolitan Edison Company*, 419 U.S.C. 345 (1974), for the proposition that the Commission has no authority to require a review procedure. In that case, the Court established the principle that there had to be a sufficiently close nexus between the state and the action of the regulated utility before the latter could fairly be viewed as state action requiring due process protection. Of considerable importance is whether the government put "its own weight on the side of the proposed practice by ordering it." *Id.* at 357. The industry argues, "At bottom, there is no state action involved because the government does not compel action against any employee; it only compels the employer to establish a framework for making its own assessments about its employees."

The Commission need not resolve whether, under this access authorization program, licensee decisions on access would be regarded as governmental action requiring due process protection,

because the Commission does not base the requirement for review procedures on a need to comply with constitutional due process requirements. Rather, the Commission sees the review procedures required by the rule as necessary to assure effective access monitoring by licensees. Therefore, the Commission has authority to impose these procedures because they will further the safety interests addressed by the access rule.

The effectiveness of the program will depend on the accuracy of the information that forms the basis for access authorization decisions and on the perception of the licensee's employees that the program is a fair one worthy of their cooperation. The review procedures mandated by the rule are responsive to both these concerns. They provide a necessary additional assurance that where access is denied there is a sound basis for the decision and that mistaken access denials, which could undermine the quality of a licensee's work force and thereby counter the interests of safety, will not stand uncorrected. Furthermore, the use of even-handed fact-finding procedures, irrespective of due process clause considerations, should assure both the appearance and substance of fairness, which the Commission believes are necessary for an effective program.

In the Commission's view, it is not sufficient reason to dispense with the review procedures simply because there are other remedies that are available to the aggrieved person. Although in theory an aggrieved individual could commence an action in a State or a Federal court, such litigation could be costly and time-consuming for the average employee. In addition, the Commission has not seen evidence that union collective bargaining agreements (where they exist) would automatically include denial or revocation of access authorization as a grievable action. In any case, the latter would not be available in nonunion plants. Further, if procedures under collective bargaining agreements are readily available for this purpose in the absence of a required review procedure, as the Edison Electric Institute argues, there is no basis for objection to the review portion of the rule in unionized plants, since the rule would allow the use of a grievance procedure for review of denials or revocations of access authorizations.

Several other comments on the portion of the rule requiring a review procedure did not address basic questions of authority and necessity but rather the form of the rule itself. The

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comments and the response thereto follows.

A third party (i.e., an independent adjudicator) should not be deciding disputes over access authorization. An independent adjudicator could allow access to the plant to a person whom the utility management believes may present a serious threat to plant security. The Commission notes that the required review procedure applies only to employees denied access authorization on the basis of the program elements in the rule itself. The rule does not preclude utility management from denying access to an employee for reasons not subsumed under the mandated program. In addition, if the evidence indicates a proper application of relevant criteria in excluding an employee, the review procedure, if utilized, should result in a decision vindicating the management action.

A nonunion utility expressed a concern that the review procedure may inject an adversarial note into an employment relationship based on mutually shared assumptions of trust between managers and employees. Another nonunion utility mentioned that for decades it has had an impartial and objective company procedure that has acceptance of management and employees. Such company procedures are acceptable under the rule, provided the minimum requirements of fairness are met. These minimum requirements include adequate notice, a fair hearing, and an impartial decisionmaker. The latter can be a trusted employee, a member of the management team, or an outsider. The critical element is that the decisionmaker's own status within the company not be affected by his or her decisions, whether rendered for or against the company.

One commenter was concerned that application of the procedure to a denial of access authorization meant that it applied to persons not yet employees. The review procedure applies to both denial and revocation, but only in reference to employees. The access authorization rule is not written as a preemployment screening device. It applies to persons who are employees of the licensee (or its contractors or vendors). Although the utility may make eligibility for unescorted access to plant vital equipment and protected and vital areas a precondition of employment, under the rule the actual grant of access authorization or its denial comes after the employment relationship has been established, not before.

II.2 Grandfathering.

The Guidelines allow grandfathering of any individual holding a valid access authorization either on the date of the implementation of the rule or anytime during the previous 365 days. This would allow for the possibility of grandfathering without either a complete screening or a sufficient meaningful period of behavioral observation. To eliminate this possibility the rule provides that only those individuals may be grandfathered who have had an uninterrupted access authorization for at least 180 days on the date the final rule is published in the Federal Register.

One commenter commented that employees who had nuclear and fossil fuel generating station experience, worked for the same company, and were members of the same union, able to work in either a fossil fuel or a nuclear plant should not be subjected to update requirements by the behavioral observation program. The Commission disagrees, and notes there are higher standards for nuclear power plant operations than there are for nonnuclear power operations. A behavioral observation program is necessary for employees to retain their access authorization.

Another commenter wanted clarification of whether a contractor or vendor employee's unescorted access at one utility on the date of implementation of the access authorization program at that utility could be grandfathered to another utility. Grandfathering is not transferable. The rule provides for grandfathering only at the utility where an individual has been working for the 180 days prior to the rules publication in the Federal Register.

III. Other Provisions

III.1 Evaluation Criteria for Unescorted Access

Comments were made that the criteria are inadequate. Concern was expressed that, without specific criteria, noncertification policies are likely to emerge from trial and error which will be unfair, inconsistent, and difficult to validate, and that utility companies probably will experience greater vulnerability to litigation. The Commission believes that the evaluation criteria given in the Guidelines, Revision 89-01, August 1989, as endorsed by the regulatory guide are specific enough for the utility to apply fairly and consistently.

III.2 Temporary Unescorted Access Authorization

This rule contains a provision for a temporary unescorted access program. This satisfies the concerns of many commenters who wanted to ensure that temporary unescorted access authorization capability remains a valid element in security plans in accordance with the NRC's Generic Letter 87-10.

The temporary unescorted access authorization for both permanent or temporary employees may be used when there is a good reason for expediting employees' unescorted access authorization. The rule requires that this temporary authorization, which is good for a maximum of 180 days, satisfies certain conditions, i.e., the licensee shall have verified the person's identity, initiated the background investigation (including submittal of fingerprints to the FBI through the NRC), completed an employment check for the past year, obtained the recommendation of a developed character reference, conducted a credit check, and completed the psychological assessment. A licensee should grant an employee only one temporary access authorization for 180 uninterrupted days. Any longer access authorization is not "temporary." Using this provision to allow back-to-back temporary access authorizations for an employee by the same licensee to circumvent the normal requirements for unescorted access would be a misuse of this provision.

Many commenters commented that the credit check should not be included as a requirement for granting temporary access authorization because it lengthens the time required to complete screening for temporary access while typically yielding very little useful information. One commenter stated that psychological assessments as well as credit checks are not necessary for temporary access authorization and considered the cost to implement these elements to be excessive. The Commission believes that the credit check and psychological assessments are necessary and must be completed before temporary access is granted.

III.3 Transfer and Reinstatement of Unescorted Access

Comments on contractor and vendor programs also concerned the transferability of access authorization. The majority supported retaining transferability; however, one commenter disagreed. The Commission is retaining transferability because if an individual's access authorization is done properly,

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there is no need for or advantage in repeating the process.

One commenter stated that because the psychological assessment, as well as background investigations, established only initial reliability of an employee and it was the purpose of the behavioral observation program to establish the continuing reliability of that person, a 365 day break in behavioral observation could significantly compromise public health and safety. The commenter believes that psychological retesting should be required upon a break in continual behavioral observation. Another commenter suggested that there should be some information to indicate that the person was not, during his or her absence, either in jail or in a psychiatric ward. The Commission believes that this is a valid point but that requiring a complete psychological assessment and background investigation after every break in the behavioral observation program is not feasible and there is information available to licensees from other sources. For example, if the access authorization is lost because of a leave of absence, it was reasonable to assume that the reason for the leave of absence is known to the licensee, and that a licensee has some indication of the activities of the employee during this period. Prior to reinstatement of the access authorization, it is expected that licensees will ascertain that these activities would not affect the employee's trustworthiness and reliability.

Two commenters strongly endorsed the Guidelines provision which allows transfer or reinstatement of unescorted access if this access was favorably terminated within 365 days. Some time period to allow for transfer and reinstatement needs to be specified, and one year is considered reasonable.

III.4 Exemptions

Several comments were received regarding the stipulation in the proposed rule that licensees are to grant unescorted access authorization to employees of the NRC who had been designated to meet the intent of the requirements of § 73.56. Although some elements associated with the L and Q, as well as the R and U, clearance programs of the Commission are not identical to elements in the access authorization program, the Commission does not believe that any change to the proposed rule is needed as to the treatment of NRC personnel. In exercising its prerogative to certify that these persons have met the intent of the requirements of the proposed rule, the Commission has given due

consideration to the fact that persons who have been designated by NRC are subjected to government-administered background investigation programs that go beyond the investigations required of licensees. These persons are also subject to periodic reinvestigations. Because these government administered programs are deemed the equivalent of the program required by this rulemaking, a specific exemption for persons designated by the NRC is included.

The Department of Nuclear Safety of the State of Illinois requested that appropriate State employees and contractors also be exempt from a licensee's program. It is not the intent of the Commission to exempt anyone from an access authorization program other than persons designated by the NRC. The Commission believes that the issue of whether a state's access authorization program is acceptable to a licensee as meeting the intent of the licensee's program is an issue to be resolved by the licensee and state officials.

III.5 Contractor and Vendor Requirements

One commenter wanted the policy to clearly permit the utility to adopt all, or any part of, a contractor's screening or behavioral observation program. In instances where Guidelines were not met by the contractor's program, the utility would have responsibility for supplementing it with the utility's own program. The Commission agrees that if the components of a contractor's or vendor's program meet the requirements of a licensee's access authorization program, those components may be accepted at the licensee's discretion. One commenter stated that unions needed the right to request records to facilitate audits. The Commission notes that the unions do not have the status of independent auditors in order to audit contractor programs. Unions are not impartial with regard to issues between represented employees and management. However, the Commission has no objection to a union reviewing an independently performed audit. The Commission considers that this is a matter that can be negotiated between the unions and utilities during the bargaining process.

Contractors or vendors who have their own programs based on the regulatory guide may find an employee does not meet the requirements for unescorted access authorization. Effectively, the contractor or vendor can deny their own employee access to the plant. However, it should be noted that the ultimate responsibility of denying or granting access authorization to an individual resides with the licensee.

III.6 Audits

There were a number of commenters who thought that the audit cycle for both utility audits and contractors and vendor audits should be three years. This cycle would be equivalent to that required for quality assurance programs specified in Regulatory Guide 1.144. The Commission believes that the comparison is invalid, and that each program's auditing frequency must be judged on its own merits. Concerns were expressed by commenters regarding what constituted an independent evaluation. One commenter pointed out that there is no procedure given by which the NRC, the agency responsible to the government and the public for ensuring safe and secure operation of power plants, is required to be informed or to ensure that corrective action is taken if defects are noted by the "independent" evaluation. This commenter stated that the policy should (1) specify NRC monitoring and control, (2) specify criteria for the independence of auditors, and (3) specify that the NRC's overview of the auditor's evaluation be exercised at least once per twelve month period. Other commenters requested clarification of what constituted an independent evaluation, i.e., someone outside the utility or the utility's own quality assurance department. One commenter specifically questioned whether the independent evaluation could be satisfied by a utility's own quality assurance program, so long as it functions independently of the group responsible for the access authorization program. One commenter said that using the utility's quality assurance program would be reasonable because independent evaluation by an outside organization was an unnecessary burden. Another stated that an independent evaluation was an unnecessary expenditure of resources, and independent evaluation of the program should properly be provided by and "in fact" would best be provided by the NRC's normal inspection programs. Further, this commenter believed that delegation of responsibility for assuring and verifying compliance by a third party other than the NRC is inappropriate, and perhaps risky. The Commission believes that an independent evaluation is a reasonable requirement which could be met by a utility's quality assurance if the persons conducting the evaluation are qualified and functionally independent of those responsible for implementing the Access Authorization Program. What constitutes the criteria for an audit need

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not be specified in the rule. Since the rule sets requirements on the licensee, not on NRC, specifying NRC overview is not necessary.

Several commenters wanted clarification as to the conditions under which access authorizations and audits could be shared. Further clarification was requested as to whether utilities were required to separately review the actual screening information, or if they could rely on the audit process and assurance of the contractor's or vendor's program. Licensees may rely on the contractor or vendor if they choose. However, each licensee is ultimately responsible to the NRC for the audits by any other utility or any contractor programs that they accept. Further clarification was requested as to whether audits of contractor and vendor access authorization programs should be conducted for contractors or vendors who are not active within the annual audit period. If a contractor is not active during the audit period, the contractor or vendor does not need to be audited.

One commenter expressed concern that the audit criteria required only that certain procedures be performed, not that they be performed well. Specifying that audits be done well is redundant. Properly performed audits will be assured by the performance objectives.

Many commenters pointed out the need to have Attachment A of the Guidelines conform to 10 CFR 73.57 which does not permit contractors and vendors to request criminal checks from the FBI through the NRC. Because only utility licensees can request criminal history checks, this is a necessary change which has been made in the Guidelines, Revision 89-01, August 1989.

III.7 Access Authorization During Cold Shutdown

The Guidelines provide for relaxation of the unescorted access authorization requirements during times such as refueling or maintenance outages. The rationale for allowing access requirements to be relaxed is that there is little if any risk of sabotage when the facility is in cold shutdown and appropriate security for fuel is maintained. The Guidelines requirements for "thorough visual inspection" prior to start-up and "appropriate procedures" to assure proper functioning of systems are intended to provide assurance that the functional capability of vital equipment was not impaired during the period. Comments were made that the potential for compromised trustworthiness, reliability, and emotional stability exists as much or more during cold shutdown as during a fully operational state. The

Commission agrees with these comments and, therefore, includes specific provisions for cold shutdown in the rule. The Commission further notes that 10 CFR part 73.57(b)(2)(iv), which waives Criminal History Checks during cold shutdown, is not in accord with this conclusion. Therefore, based upon the public comments and fact that the Commission is now promulgating a comprehensive access authorization rule which includes specific provisions for cold shutdown, the Commission is deleting 10 CFR part 73.57(b)(2)(iv). The Commission is taking this action to be sure that the regulations for Criminal History Checks in 10 CFR part 73.57 are consistent with the specific provisions for cold shutdown in the new rule.

The Guidelines do not provide definitive guidance on specific actions required to insure proper functioning of such equipment in the protected and vital areas for which the access authorization requirement has been relaxed. The Commission believes that it is not practical to provide generically more definitive guidance than that of the Guidelines. Rather, the determination as to what measures are needed to ensure that the functional capability of vital equipment has not been impaired by relaxation of the access authorization requirement is specific to the particular plant and the vital equipment affected. These measures (e.g., functional testing of security and reactor systems and components, security searches, enhanced access controls into areas retained as vital, establishment of alternative access requirements) would likely be extensive and could vary dramatically depending on a number of factors including number of workers involved, extent of devitalization, and length and nature of the plant outage. The licensee would also be expected to demonstrate that adequate measures will continue to be in place to protect new and spent fuel that is onsite. Nonetheless, the Commission believes it is possible to evaluate the adequacy of a licensee's site-specific compensatory measures. Therefore, the provision included in the rule allows conditional relaxation of unescorted access during cold shutdown on a case-by-case basis. The provision requires the licensee who chooses to implement such relaxation to develop and incorporate into their Physical Security Plans such compensatory measures.

It is the Commission's view that there may be special circumstances where the use of relaxed access requirements and compensatory measures will be a preferable approach. Under most circumstances, the existing options of the access authorization program

provide sufficient flexibility for site access. The Commission expects that the option to relax access requirements during cold shutdown will only be exercised during major outages where there is substantial work requiring extensive use of temporary workers. Under these circumstances the licensee would likely have to do extensive functional testing of equipment following the outage for both operational and security purposes.

III.8 Records and Protection of Information

Clarification as to how long records need to be retained was requested. The Commission is requiring a record retention period of 5 years beyond termination of employment or denial of access.

One commenter pointed out that the documentation of the criminal history check is maintained by the licensee and that this should be specifically stated in the Guidelines. The Commission notes this is already stated in 10 CFR 73.57, and it has been added to the Guidelines.

Concerns about protection of information required by this program were expressed, even though it was addressed in the Guidelines. Protection of information is explicitly required by the rule and the situations under which information can be released are specified.

IV. General

IV.1 Relationship to Fitness for Duty

The labor union commenters expressed concerns about the random drug testing program. These comments supported the behavioral observation program because it included observation for substance abuse and, implicitly, drug testing for cause as opposed to random drug testing which the union did not support. The Commission notes drug testing is not part of the access authorization rule. The requirements for drug testing are contained in 10 CFR Part 26, Fitness for Duty Programs. The common element in the two programs is the behavioral observation program. There are no conflicting requirements.

IV.2 Standardization of Requirements

The commenters stressed the importance of standards being consistent throughout the industry. One contractor stated that meeting the standards in the Guidelines should be sufficient for unescorted access to any utility. The Commission intends to establish minimum criteria for a licensee's program for allowing unescorted access to a nuclear power plant in the rule and to endorse the

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NUMARC Guidelines (with exceptions as noted in the regulatory guide) as an acceptable means of implementing the rule. The ultimate responsibility for granting unescorted access rests with the licensee, provided the Commission's requirements are met.

IV.3 Failure to Include the Bargaining Unit

The labor unions who commented expressed concern that the Guidelines were developed without input from the bargaining unit or any worker representatives. The unions believed that issues involved in granting access authorization were conditions of employment and as such should be subject to the collective bargaining process. Having the policy statement published in proposed form allowed them and other interested parties to comment and make their opinions known. It is not the intent of the Commission to exclude from consideration or to require consideration of access authorization issues in the collective bargaining process as long as the resolution of these issues is within the limits set by this rulemaking.

IV.4 Responsibility for Revisions to the Guidelines

Many commenters made the point that the Guidelines are NUMARC's and the responsibility for revision remains with NUMARC. This is true. The regulatory guide will endorse only a specific version of the Guidelines, namely Revision 89-01, August 1989. Any changes NUMARC might subsequently make in the Guidelines would not be a part of the regulatory guide. This would not, however, preclude future changes to the regulatory guide or the licensees' commitment to such changes if they do not decrease the effectiveness of the physical security plan under the provisions of 10 CFR 50.54(p).

Environmental Impact: Categorical Exclusion

The NRC has determined that this rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements will become effective only after they have been approved by the Office of Management and Budget. Notification of OMB approval will be published in the *Federal Register*.

Because all licensees presently have an access authorization program in their

Physical Security Plans, the actual public reporting burden for this collection of information is estimated to average a one time burden of 404 hours per response the first year and an annual incremental burden of 161 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0002), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L St. NW. (Lower Level), Washington, DC 20037. Single copies of the analysis may be obtained from Dr. Sandra Frattali, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3773.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule will not have a significant economic impact on a substantial number of small entities. This new 10 CFR part 73.56 applies to owners and operators of civilian nuclear power reactors and their contractors and vendors. The companies that own power reactor facilities do not fall within the scope of "small entities" set forth in the Regulatory Flexibility Act or the small business size standards set out in regulations issued by the Small Business Administration in 13 CFR part 121. Any costs to the minor number of small entities affected, i.e., contractors and vendors, will apply only to those employees working at the nuclear power reactors, and presumably would be reimbursed through the contract.

Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the final rule. Based on the analysis, the Commission recognizes that it cannot quantify the reduction in risk and accompanying increase in safety that would result from

compliance with the requirements of this rule. However, to the extent that the access authorization program provided for in the rule results in a more effective and thorough screening of persons having unescorted access to nuclear power plants, it will reduce the likelihood of internal acts leading to radiological sabotage and, in any case, will provide increased assurance of trustworthiness and reliability of such individuals. The present rulemaking and associated regulatory guide will specifically provide increased assurance that individuals granted unescorted access to protected and vital areas are trustworthy and reliable and do not pose a threat to commit radiological sabotage by:

1. Establishing minimum requirements for access authorization programs in an enforceable manner.

2. Ensuring that licensees not committed to minimum requirements improve their programs.

3. Providing assurance that those portions of voluntary and improved programs developed and implemented in anticipation of regulatory actions which are consistent with the rule are not degraded for the lifetime of the plant.

These programs have been demonstrated to be cost effective in that many licensees have voluntarily adopted them. Therefore, on balance, the Commission has concluded that the rule will provide a substantial increase in protection to the public health and safety by reducing the risk of radiological sabotage that could be caused by an unreliable or untrustworthy insider at a cost that is justified by enhanced protection.

The backfit analysis on which this determination is based is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20037. Single copies of the analysis may be obtained from Dr. Sandra Frattali, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3773.

List of Subjects in 10 CFR Part 73

Criminal Penalty, Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 73.

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56 FR 19253
Published 4/26/91
Effective 4/26/91.

*Change in Commercial Telephone
Number for Region V*

See Part 20 Statements of Consideration

56 FR 24239
Published 5/29/91.

10 CFR Part 73
RIN 3150-AA90

Access Authorization Program for Nuclear Power Plants

Correction

In rule document 91-9479 beginning on page 18997 in the issue of Thursday, April 25, 1991, make the following correction:

§ 73.56 [Corrected]

On page 19007, in the first column, in § 73.56(a)(2), in the seventh line, "which" should read "whichever".

56 FR 41448
Published 8/21/91
Effective 9/2/91

*Change in Commercial Telephone
Number for Region V*

See Part 20 Statements of
Consideration

56 FR 47671
Published 9/20/91
Effective 7/1/91

See 56 FR 18997 published 4/25/91
Information collection requirements
effective 7/1/91

10 CFR Part 73
RIN 3150-AA90

Access Authorization Program for Nuclear Power Plants

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule: Confirmation of
effective date for information collection
requirements.

SUMMARY: In a final rule published in the Federal Register on April 25, 1991 (56 FR 18997), the Nuclear Regulatory Commission amended 10 CFR part 73 to require an access authorization program for granting unescorted access to individuals at nuclear power plants. The Office of Management and Budget approved the information collection requirements contained in this final rule on July 1, 1991.

EFFECTIVE DATE: The information collection requirements contained in §§ 73.56(a) (1), (2), and (3), (b) (1) and (2), (c), (d), (e), (f) (1) and (2), (g) (1) and (2) and (h)(1) are effective on July 1, 1991.

FOR FURTHER INFORMATION CONTACT: Dr. Sandra D. Frattali, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3773, or Brenda Jo Shelton, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-8132.

SUPPLEMENTARY INFORMATION: The effective date for 10 CFR 73.56, Personnel access authorization requirements for nuclear power plants, was May 28, 1991, except for the additional information collection requirements contained in §§ 73.56(a) (1), (2), and (3), (b) (1) and (2), (c), (d), (e), (f) (1) and (2), (g) (1) and (2) and (h)(1), which, as an additional information collection burden, were subject to approval by the Office of Management and Budget. The information collection requirements contained in these paragraphs were approved and became effective on July 1, 1991, under OMB clearance number 3150-0002.

Dated at Rockville, Maryland, this 13th day of September, 1991.

For the Nuclear Regulatory Commission,
Samuel J. Chilk,
Secretary of the Commission.

57 FR 7645
Published 3/4/92
Effective 4/3/92

10 CFR Part 73
RIN 3150-AE19

Fingerprint Cards: Resubmittal Procedure Change

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect an administrative change pertaining to the resubmittal of rejected fingerprint cards associated with granting access to Safeguards Information or for granting unescorted access to an operating nuclear power plant as required by Public Law 93-399. This amendment is necessary to conform to new procedures adopted by the Federal Bureau of Investigation (FBI).

EFFECTIVE DATE: April 3, 1992.

FOR FURTHER INFORMATION CONTACT: C.H. Hendren, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 504-3209.

SUPPLEMENTARY INFORMATION:

Background

On December 10, 1991, the FBI's Identification Division notified the Nuclear Regulatory Commission of a change in the procedures for submitting replacement fingerprint cards when a prior fingerprint card is rejected.

Previously, replacement fingerprint cards could be submitted any number of times when prior sets were rejected. If the rejected card was attached to the replacement fingerprint card, the FBI did not charge an additional fee.

However, effective January 2, 1992, the FBI will allow only one free resubmission of a fingerprint card for each processing fee payment. If the first set cannot be classified, then that set will be returned with notations as to the reason(s), plus resubmittal instructions for the one free resubmission. The rejected card must be attached to the second submission. If the second submission cannot be classified, then both the first and second submissions will be returned. The contributor must then decide to accept the negative name-check response or, alternately, submit a third set of fingerprints and pay the processing fee again. Payment of a new processing fee would entitle the submitter to one more free resubmission. If previously rejected fingerprint cards are attached to the third submission, then the third submission will be rejected immediately by the FBI based on their interpretation that this indicates the contributor does not realize a processing fee must be paid again. If submissions cannot be classified, the FBI recommends that a qualified fingerprint technician be used to ensure that high quality fingerprint impressions are taken. The FBI also notes that it is difficult to get classifiable fingerprints from some people.

Because this amendment pertains only to a processing change imposed by the FBI, the notice and comment provisions of the Administrative Procedure Act are impractical and unnecessary. This amendment is effective 30 days after publication in the Federal Register.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

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Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget under control number 3150-0002.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to the action taken in this final rulemaking and therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 73

Criminal penalties, Hazardous materials-transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR Part 73.

57 FR 33426
Published 7/29/92
Effective 8/28/92

10 CFR Parts 70, 72, 73, and 75

RIN 3150-AD03

Minor Amendments to the Physical Protection Requirements

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations that cover the physical protection of special nuclear material. These amendments will (1) supplement the definitions section, (2) delete action dates that no longer apply, (3) correct outdated terms and cross references, (4) clarify wording that is susceptible to differing interpretations, (5) correct typographical errors, and (6) make other minor changes. The amendments are the result of a systematic review of NRC's safeguards regulations.

EFFECTIVE DATE: August 28, 1992.

FOR FURTHER INFORMATION CONTACT:

Stanley P. Turel, Regulation Development Branch, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-3739; Priscilla Dwyer, Domestic Safeguards Branch, Division of Safeguards and Transportation, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 504-2478; or Donald M. Carlson, Reactor Safeguards Branch, Division of Reactor Inspection and Safeguards, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 504-3212.

SUPPLEMENTARY INFORMATION: The NRC Safeguards Interoffice Review Group has conducted a systematic review of the Agency's safeguards regulations and guidance documents to identify areas in the regulations that are out of date, inconsistent, or susceptible to differing interpretations. In doing so, the review group identified other areas in the regulations where minor changes are warranted. The NRC published in the Federal Register on August 15, 1989 (54

FR 33570), proposed amendments consisting of minor corrections and changes to its regulations identified by the review group that cover the physical protection of special nuclear material. The comment period ended on September 29, 1989. The changes are summarized here with a brief discussion.

1. The substance of paragraphs (b), (c), and (d) of 10 CFR 73.40 has been moved to appendix C of 10 CFR part 73 and combined with the safeguards contingency plan specifications already there. The requirement for having a safeguards contingency plan is included in each of the sections of the regulations covering security requirements for the specific class of licensee (i.e., §§ 73.20, 73.25, 73.26, 73.40, 73.46, 73.55, 73.60).

2. To avoid possible confusion, definitions of the commonly used terms Category I, Category II, and Category III have been added to the definitions sections of 10 CFR parts 70 and 73.

A formula quantity of strategic special nuclear material is sometimes referred to as a Category I quantity of material; special nuclear material of moderate strategic significance is sometimes referred to as a Category II quantity of material; and special nuclear material of low strategic significance is sometimes referred to as a Category III quantity of material. The current regulations do not include these category designations, although they are sometimes used.

3. Inconsistencies among the general auditing requirements have been removed for the safeguards contingency plans and physical security programs of transportation and fuel cycle licensees who possess Category I material.

Inconsistencies in both the content of the audits and resultant follow-up actions have been eliminated. The record retention period for results of these audits is being made consistent at 3 years.

4. A definition for the term "contiguous sites" has been added to 10 CFR parts 70 and 73. In the final definition, the words " * * " means locations subject to the control of a licensee, " * * " have been grammatically changed to read " * * " means licensee controlled locations, " * * " In addition, the words " * * " and for the possession, use, or storage of special nuclear material " * * " have been deleted from the definition since they generally appear in the introductory language of applicable regulations. Action dates that have passed have been eliminated. The outdated term "industrial sabotage" has been replaced by the current term "radiological sabotage." Incorrect

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references to parts of the regulations that have been moved or deleted have been corrected. Paragraph designations in references, in other parts of the regulations, to definitions in § 70.4 have been removed because those designations were deleted in an amendment published in the *Federal Register* on April 28, 1989 (54 FR 14051). Several areas in the regulations have been clarified where the wording was susceptible to differing interpretations. The notification requirement for changes to the safeguards contingency plan that do not decrease the plan's effectiveness has been revised to require that the original be sent to the NRC headquarters office with a copy to the regional office, instead of vice versa. Finally, several typographical errors have been corrected.

Summary of Public Comments

Three letters of comment were received: Two from nuclear power plant licensees and one from NUMARC, an umbrella organization of the nuclear power industry whose membership includes every utility responsible for constructing or operating a commercial nuclear power plant in the United States. Copies of comment letters are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street NW. (Lower Level), Washington, DC.

All three commenters addressed only the amendment that would restore the sentence inadvertently omitted, while amending the physical protection requirements in 1986, from § 73.55(d), Access Requirements. It reads:

"Access to vital areas for the purpose of general familiarization and other nonwork-related activities may not be authorized except for good cause shown to the licensee." This sentence follows the requirement in § 73.55(d)(7)(i) that the licensee "Establish an access authorization system to limit unescorted access to vital areas during non-emergency conditions to individuals who require access in order to perform their duties."

The first commenter stated that the restrictions, presumably made explicit by the inserted sentence, should be withdrawn to allow tours with the provision of appropriate security measures to ensure plant safety and that "This change would limit access to nuclear plant vital areas even when under escort." Another commenter asserted that the inserted sentence "needs clarification" but did not specify what additional clarification was required. The third commenter stated that it would be beneficial if a definition of "good cause" were provided by the

Commission in the rule and if additional guidance were provided as to what constitutes nonwork-related activities.

The NRC agrees that the subject sentence is not clear, particularly with respect to how it applies to escorted persons, and has decided not to reinsert the sentence. As stated in item 5 of the Supplementary Information published with the proposed rule, the NRC was concerned that the inadvertent omission of the sentence would be construed as a "'signal' that vital areas could be 'opened up' to 'public sightseeing tours' or 'open house visits' without close licensee oversight." The NRC continues to be concerned about unnecessary escorted personnel traffic in vital areas, especially the control room, but considers that licensee security plans generally provide an adequate basis for the control of such practice. The NRC concludes that licensee security plans, in implementing 10 CFR 73.55(d)(7), would not permit licensees to grant access to persons, either unescorted or escorted, who have no legitimate purpose for such access. Further, prior to granting escorted access, licensees would consider the number of visitors each escort would be allowed to monitor and other controls. Means of achieving the purpose of the visit without entering vital areas also would be considered (e.g., touring the control room simulator rather than the control room). Examples of legitimate small tours, which might include brief access to vital areas, are visits by government officials, the press, or local science teachers. In summary, visitors should not be permitted access to vital areas at operating sites unless there is a good reason and due consideration is given to plant and personnel safety and radiological concerns.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in the categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this regulation.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved under the Office of Management and Budget approval number 3150-0009 for part 70, approval number 3150-0132 for part 72, approval number 3150-0002 for part 73, and approval number 3150-0055 for part 75.

Regulatory Analysis

These minor amendments impose no new restrictions or requirements, and therefore, have no significant impact. Accordingly, a regulatory analysis is considered not necessary and has not been prepared.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. The amendments, as promulgated, are very minor in nature and the impact on any licensee is minimal. In the matter of reporting certain changes to the security program, the amendments merely reverse who receives the original and who receives the copy. The other changes are of an administrative nature and, therefore, do not alter the current implementation of the regulations by a licensee.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because these amendments do not impose requirements on existing 10 CFR part 50 licensees. Therefore, a backfit analysis is not required for this final rule.

List of Subjects

10 CFR Part 70

Criminal penalties, Hazardous materials—Transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 73

Criminal penalties, Hazardous materials—Transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 75

Criminal penalties, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

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For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 70, 72, 73, and 75.

57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

57 FR 61785
Published 12/29/92
Effective 12/29/92

*Material Approved for Incorporation by
Reference; Maintenance and
Availability*

See Part 35 Statements of Consideration

58 FR 13699
Published 3/15/93
Effective 4/14/93

10 CFR Part 73

RIN 3150-AE08

Clarification of Physical Protection Requirements at Fixed Sites

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its general physical protection requirements for fixed sites. This action is necessary to clarify the Commission's regulatory intent. This amendment makes it clear that the Commission's regulations do not require protection against *both* radiological sabotage and theft of special nuclear material (SNM) at *all* facilities. The Commission is also adding a requirement that nonpower reactor licensees, who operate at or above 2 megawatts thermal, protect against radiological sabotage where deemed necessary.

EFFECTIVE DATE: April 14, 1993.

ADDRESSES: The final regulatory analysis and environmental assessment for the rule is available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Dr. Sandra D. Frattali, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3773.

SUPPLEMENTARY INFORMATION:

Background

The Commission is concerned that its regulations regarding physical protection requirements could be interpreted as requiring protection against both radiological sabotage and theft of special nuclear material at all fixed sites. The Commission is clarifying the language of the current rule to prevent this interpretation. Additionally, the Commission is concerned that for some nonpower reactors authorized to operate at or above 2 megawatts thermal, the possibility of sabotage leading to a significant radiological release, though remote, should not be discounted. The Commission has decided to add a requirement to its regulations to address this issue. The Commission published a proposed rule in the *Federal Register* on May 29, 1992 (57 FR 22670), to address these concerns. The proposed rule clarified the physical protection requirements at fixed sites by amending the wording of § 73.40 to make it clear that if a licensee satisfies the specific requirements in part 73 that apply to its specific class of facility, material, or activity, then the general need for physical protection is satisfied. The proposed rule also added an explicit requirement to § 73.60 for protection against radiological sabotage where deemed necessary. It should be noted that those nonpower reactor licensees currently operating at or above 2 megawatts thermal, who have been identified as possibly being vulnerable to radiological sabotage, are voluntarily implementing additional measures to provide physical protection against radiological sabotage. The 75-day public comment period expired on August 12, 1992. One comment was received.

Public Comment on the Proposed Rule

The commenter supported the proposed rule. There are no changes in the regulatory requirements of this final rule from those published as the proposed rule. In addition, the commenter interpreted the proposed rule to mean that if the physical protection system for a uranium enrichment facility that possessed only special nuclear material of low strategic significance satisfied the requirements of §§ 73.67(a), (f), and (g), then the requirements of § 73.40 would be satisfied.

The Commission agrees that this interpretation is correct.

There was no public comment on the amendment to § 73.60 requiring additional protection for nonpower reactors.

This rule is issued pursuant to sections 161 (b) and (i) of the Atomic Energy Act of 1954, as amended.

Finding of No Significant

Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The amendment to § 73.40 clarifies that the Commission's regulations do not require protection against *both* radiological sabotage and theft of special nuclear material at *all* facilities, which simply codifies existing NRC practice. Consequently, no environmental impacts are associated with this amendment. The amendment to § 73.60 requires certain nonpower reactor licensees, who operate at or above 2 megawatts thermal, to protect against radiological sabotage where deemed necessary. Facilities affected by the amendment to § 73.60 are already voluntarily implementing this requirement, and therefore, no consequences to the environment will occur due to this rulemaking. The amendment to § 73.60 also requires future nonpower reactor licensees to provide physical protection against radiological sabotage if an analysis of the reactor's characteristics and fuel used therein indicates that such protection is necessary. For a future licensee, any environmental impacts associated with this requirement will be included in the Environmental Impact Statement prepared in support of that license application. The environmental assessment and finding of no significant impact on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies are available from Dr. Sandra D. Frattali, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3773.

Paperwork Reduction Act Statement

This final rule contains no new or amended information collection requirements and therefore is not subject to the requirements of the

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Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0002.

Regulatory Analysis

The Commission has prepared a regulatory analysis for this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Dr. Sandra D. Frattali, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3773.

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule does not have a significant economic impact on a substantial number of small entities. There is no economic impact on any current or future licensee except for certain nonpower reactor licensees. However, nonpower reactor licensees do not fall within the scope of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR part 121.

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because the amendment to § 73.40 does not impose requirements on existing nuclear power reactor licensees, and the amendment to § 73.60 applies only to nonpower reactors. Therefore, a backfit analysis was not prepared for this final rule.

List of Subjects in 10 CFR Part 73

Criminal Penalties, Hazardous materials—transportation, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 73.

58 FR 29521
Published 5/21/93
Effective 6/21/93

10 CFR Parts 73 and 74

RIN 3150-AE27

Licensees' Announcements of Safeguards Inspections

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations concerning safeguards inspections at facilities that possess a formula quantity of strategic special nuclear material in unirradiated form. The purpose of the rule is to ensure that the presence of NRC safeguards inspectors at affected facilities is not announced nor widely communicated to licensee and contractor personnel without the expressed request to do so by the safeguards inspector. The rule will increase the effectiveness of unannounced safeguards inspections and enable a safeguards inspector to obtain a more accurate view of operations at the facility.

EFFECTIVE DATE: June 21, 1993.

FOR FURTHER INFORMATION CONTACT: Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2478.

SUPPLEMENTARY INFORMATION:

Background

The Commission is concerned that the effectiveness of unannounced safeguards inspections at certain facilities required to maintain safeguards may be diminished by the announcement or other communication of the presence of a safeguards inspector on-site, without the expressed request of the safeguards inspector. On November 3, 1992 (57 FR 49656), the Commission published a proposed rule that would prohibit a licensee or its contractors from using an access control measure or other means to intentionally give notice to other persons of the arrival or presence of an NRC safeguards inspector at facilities possessing a formula quantity of strategic special nuclear material in unirradiated form. Similar requirements are in place for power reactor sites as required by 10 CFR 50.70(b)(4).

Safeguards inspections are comprised of material control and accounting inspections, and physical security inspections. The proposed rule was limited to safeguards inspections due to the expediency by which most

safeguards degradation can typically be compensated for after the announcement of the presence of an NRC safeguards inspector, such as, by the posting of a security officer. The proposed amendment would impose only procedural changes and is expected to have no economic impact on affected licensees or the public. Violation of these rules may subject a person to the criminal penalties in section 223 of the Atomic Energy Act of 1954, as amended. Notwithstanding, the Commission reiterates the position stated in the notice of proposed rulemaking regarding enforcement action.

As the NRC said when it promulgated 10 CFR 50.70(b)(4), which prohibits nuclear power reactor licensees from communicating the arrival or presence of an NRC inspector unless asked to do so by the inspector:

Recognizing the possibility of inadvertent communication of an inspector's presence, the NRC expects to reserve enforcement action [only] for significant intentional violations of the [prohibition]. An honest response by an employee to an innocent inquiry that he [or] she just saw an NRC inspector is not [proscribed by] the rule.

Therefore, an employee would not be required to lie, in response to a question, about the presence of an NRC inspector (53 FR 42940; October 25, 1988).

Similarly, the NRC recognizes the possibility that some communication of an inspector's presence may even be necessary on occasion. For instance, the person directly in charge of an area being inspected may need to inform certain other people, perhaps higher-level managers, that, because of the inspection, he or she cannot attend a previously scheduled meeting. An employee would not be required by the rule to cancel previous engagements without giving timely and sufficient reason.

Public Comment on the Proposed Rule

The 90-day public comment period for the rule expired on February 1, 1993. Affected licensees sent no comments on the proposed amendment. One letter of comment was received from a concerned citizen. The concerned citizen recommended strengthening the rule to prohibit the announcement of inspections by anyone, not just the licensee, and cited what were considered to be general violations of the existing prohibition contained in 10 CFR 50.70(b)(4). The Commission notes that the comment appears to focus on inspections at power reactor sites, as opposed to the facilities affected by the rule, that is, facilities possessing a formula quantity of strategic special nuclear material in unirradiated form. Further, announced inspections are conducted as part of an overall

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inspection program. There are many occasions when it is proper and necessary that a licensee have advance notice of an inspection. Notice of these inspections may be widely communicated. The Commission's regulatory authority for prohibiting the announcement of an inspection does not extend beyond its licensees and its own employees. The extension of this authority, as suggested by the comment, is not within the Commission's Federal mandate.

One change has been made to the rule's text published for comment. The Commission has clarified the text that describes those facilities affected by amendments to 10 CFR 74.81. No other changes have been made to the proposed rule.

Environmental Impact: Categorical Exclusion

The NRC has determined that this amendment is the type of action described in categorical exclusion 10 CFR 55.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for the final rule.

Paperwork Reduction Act Statement

This final rule contains no new nor amended information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval numbers 3150-002 and 3150-0123.

Regulatory Analysis

This final rule will have no significant impact on State and local governments and geographical regions. It may have an impact on health, safety, and the environment, but only in the sense of preventing adverse impacts on health, safety, and the environment through more effective safeguards inspections at affected facilities. The final rule makes it clear that NRC safeguards inspectors are to have a realistic picture of the actual conditions at a site during the inspection process and, therefore, be better able to identify conditions and/or practices for corrective action, and to ensure that licensees comply with laws, regulations, and orders administered by NRC. The final rule imposes procedural changes only on affected licensees at minimal or no cost. This constitutes the regulatory analysis for the final rule.

Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small

entities. The final amendments will not impose significant cost on any affected licensees regardless of size.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because affected facilities are not licensed under 10 CFR part 50 and, therefore, a backfit analysis is not required. This final rule affects only those facilities that possess a formula quantity of strategic special nuclear material in unirradiated form and imposes only procedural changes at minimal or no cost to the licensee.

List of Subjects

10 CFR Part 73

Criminal penalties, Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 74

Accounting, Criminal penalties, Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

For the reasons set out in the preamble and under authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments.

58 FR 31467

Published 6/3/93

Effective 11/30/93

Fitness-for-Duty Requirements for Licensees Authorized To Possess, Use, or Transport Formula Quantities of Strategic Special Nuclear Material

See Part 26 Statements of Consideration

58 FR 45781

Published 8/31/93

Effective 2/28/94

10 CFR PART 73

RIN: 3150 — AD30

Day Firing Qualification Courses for Tactical Response Team Members, Armed Response Personnel, and Guards at Category I Licensees

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations for armed security force personnel at fuel cycle facilities possessing formula quantities of strategic special nuclear material (Category I licensees). Tactical Response Team members, armed response personnel, and guards at these facilities will be required to qualify and annually requalify for use of their assigned weapons using new day firing qualification courses. This action is necessary to ensure that these personnel are able to perform their assigned response duties during tactical engagements.

EFFECTIVE DATE: February 28, 1994.

FOR FURTHER INFORMATION CONTACT:

Harry S. Tovmassian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3634.

SUPPLEMENTARY INFORMATION:

Background

Existing day firing qualification courses for Tactical Response Team members¹, armed response personnel,² and guards³ at Category I licensees need to be modified to require enhanced

¹ "Tactical Response Team" means the primary response force for each shift which can be identified by a distinctive item of uniform, armed with specified weapons, and whose other duties permit immediate response.

² "Armed Response Personnel" means persons, not necessarily uniformed, whose primary duty in the event of attempted theft of special nuclear material or radiological sabotage shall be to respond, armed and equipped, to prevent or delay such actions.

³ "Guard" means a uniformed individual armed with a firearm whose primary duty is the protection of special nuclear material against theft, the protection of a plant against radiological sabotage, or both.

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proficiency in weapon manipulation skills in order to more effectively protect the facilities in the event of a hostile tactical engagement. Currently, Tactical Response Team members, armed response personnel, and guards at these facilities are required to qualify and annually requalify for day firing of their assigned weapons in accordance with criteria set forth in Appendix B of 10 CFR part 73. This appendix states that, for handgun qualification, the national police course of fire or an equivalent nationally recognized course is required and for semiautomatic rifles the course required is the 1976 edition of the National Rifle Association (NRA) Highpower Rifle Rules book or an equivalent nationally recognized course. For qualification with the shotgun, the current course of fire consists of hip firing the weapon from a 15-yard distance and shoulder firing from a 25-yard distance. These courses of fire are more oriented towards marksmanship than to weapons manipulation skills (e.g., reloading, shooting failure drills, and changing positions while firing). Although these marksmanship oriented courses were appropriate at the time they were specified, the NRC has developed an increased awareness of the evolution of the capabilities and tactics employed by the criminal and terrorist elements. Therefore, the NRC has specified, in 10 CFR 73.1, the capabilities that should be ascribed to individuals or groups that pose a threat to Category I facilities (i.e., the design basis threat). These assumed capabilities should constitute the basis for physical protection system design. The design basis threat includes a small, well trained and armed, dedicated group, possessing paramilitary capabilities.

For the reasons explained above, the NRC has decided to establish new day firing courses for the purpose of qualifying Tactical Response Team members, armed response personnel, and guards at Category I licensees for use of their assigned weapons. The techniques and methods required to successfully complete the day firing qualification courses specified in this final rule are oriented primarily toward weapons manipulation skills in addition to marksmanship and are considered necessary to survive a lethal confrontation. These amendments require that Tactical Response Team

members, armed response personnel, and guards qualify and annually requalify for day firing with assigned weapons by meeting minimum qualification criteria specified in Appendix H of 10 CFR part 73. The day firing qualification courses defined in this final rule are largely based on those developed by the Department of Energy for the purpose of qualifying its security inspectors who have the same duties as Category I licensee Tactical Response Teams, armed response personnel, and guards. These courses of fire include weapons manipulation skills that are necessary in tactical situations and demonstrate the ability to effectively use the weapons to protect the facility and strategic special nuclear material from a group of individuals possessing the capabilities ascribed to the design basis threat.

Summary of Public Comments

The comment period for the proposed rule published December 13, 1991 (56 FR 65024) expired on March 13, 1992. This Federal Register Notice contained proposed requirements for both day firing qualification and physical fitness programs. Three letters of comment were received. The NRC has decided to make substantive changes to the physical fitness related requirements and is republishing these amended requirements in a new proposed rule to solicit additional public comment. Therefore, this comment summary addresses only the comments on the day firing qualification course requirements which are being published as a final rule. The following comment summary and resolution addresses these comments.

1. *Comment.* One commenter stated that the need has not been clearly established for the more stringent firearms qualifications regulations.

Response. As discussed in the preamble of the proposed rule, the purpose of the more stringent day firing qualification courses was to make them consistent regarding the level of specificity and proficiency with the night firing requirements published in 1988. Because existing licensees' Weapons Qualifications Plans contained weapon qualification courses which were judged to be similar to the courses being proposed, the proposed rule stated the opinion that codifying the

courses in a regulation would add no new burden to the existing licensees. Nevertheless, as a result of this comment, the NRC reviewed whether the benefits to the public health and safety or to the national defense and security justify more stringent firearms qualification courses than those provided by the existing regulation.

This review has determined that these marksmanship oriented courses were appropriate at the time they were developed, but the NRC has developed an increased awareness of the evolution of the capabilities and tactics employed by the criminal and terrorist elements. The knowledge that the NRC has concerning the firepower, body armor, tactics, training, and equipment which can be ascribed to the design basis threat has broadened since Appendix B of 10 CFR part 73 was established and has been accounted for in 10 CFR 73.1(a)(2)(i). The design basis threat includes a small, well trained and armed, dedicated group, possessing paramilitary capabilities. Appendix B of 10 CFR part 73 allows handgun qualification via the national police course of fire, and rifle qualification via a 1976 National Rifle Association rulebook. These courses of fire emphasize marksmanship and do not test weapons manipulation skills (e.g., reloading, shooting failure drills, and changing positions while firing). The techniques and methods required to successfully complete the day firing qualification courses specified in this final rule are oriented toward weapons manipulation skills in addition to marksmanship and are considered to provide a significant improvement in the ability of licensee security forces to survive a lethal confrontation.

2. *Comment.* One commenter requested that Appendix H of 10 CFR 73.46 specify how head shots are to be scored for stage 2 of the handgun course.

Response. The B-27 target consists of a silhouette of a standing person and contains qualification scoring rings for shots aimed at the center target mass, but not the head. Stage 2 of the handgun qualification course of fire requires the shooter to fire two rounds at the center target mass followed by one round at the head. A description of a template for the center of the head, and the scoring scheme, are described in Appendix A of

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the Department of Energy's "Firearms Qualification Courses." Hits in the center of this template are scored five points and hits on the remainder of the silhouette are scored three points. The NRC does not believe that further description of this scoring technique in Appendix H of 10 CFR 73.46 is necessary. However, the NRC recognizes that other targets exist for which the scoring technique may be more explicit (such as the TQ-15 target). Therefore, Appendix H has been amended in the final rule to allow the use of such targets as an alternative to the B-27 provided that these targets are at least as difficult as the B-27 target (e.g., neck shots should not count the same as head shots or center mass shots).

3. *Comment.* Two commenters noted an error in that the handgun course contained distances of both 14 and 15 yards.

Response. Appendix H has been amended to correct this error.

4. *Comment.* One commenter suggested that the NRC allow either a single or double action revolver for stage 7 at the 50-yard distance in the handgun course (Note: the commenter identified stage 6 of the handgun course but the 50 yard distance is only found in stage 7).

Response. The NRC does not believe that the wording for stage 7 needs modification. Stage 7 of the handgun qualification course of fire does not specify a single or double action revolver, because either is permitted. Therefore, this modification has not been made.

5. *Comment.* One commenter noted that stages 5 and 6 of the rifle course were to be used for .30 caliber weapons for TRT qualifications only.

The commenter stated that this limits the maximum score for the standard rifle (i.e., stages 1 through 4) to 110 points and suggested that 70% of this maximum score (77 points) be specified as the minimum qualifying score for the standard rifle instead of 70% of 150 points.

Response. The NRC agrees that minimum qualifying scores should be specified separately for standard and larger caliber rifles because there may be times that a security officer may need to qualify for one but not the other. Therefore, the specific qualifying scores have been deleted from Appendix H which now specifies that 70 percent is the minimum qualifying score.

6. *Comment.* One commenter suggested that failure to qualify should result in a 3-day suspension from armed duty rather than the proposed 7-day suspension. The commenter stated that the 7-day suspension may cause the individual to be out of a job for 7 days

before he could requalify. The commenter noted that nonqualified personnel would usually be utilized in an unarmed position. However, because few of these positions exist, the 7-day waiting period could cause layoffs. Another commenter stated that the 7-day and 12-month suspensions are potentially the most significant and costly impacts of the rule. This commenter stated that extending the waiting periods beyond the time required to retrain the officer appears to be punitive, does not enhance the security program's effectiveness, and induces unnecessary costs. The commenter suggested that the rule be amended to require that an officer who fails to achieve the minimum qualifying score be removed from armed officer duty and complete a documented period of retraining prior to any subsequent attempt to qualify or requalify. The commenter further suggested that the NRC consider requiring that officers may not fire for record more than once on the same calendar day. Additionally, if an officer fails to qualify on two successive attempts, that individual would be required to receive additional training and fire two consecutive qualifying scores prior to being reassigned to armed officer duties.

Response. The NRC agrees that retraining an individual to the point of qualifying or requalifying can be accomplished in less time than the period specified in the proposed rule. Therefore, the NRC has adopted the suggestion to limit the suspension to the amount of time required to retrain individuals to the point that they can qualify or requalify and believes that this change satisfies the concerns of both commenters.

7. *Comment.* One commenter suggested that the same rationale for allowing multiple physical fitness qualifications be used in the development of weapons qualifications. The commenter stated that these qualifications, like the physical fitness qualifications, would reflect consistency with the environments in which individuals must perform their duties. The commenter further suggested that the weapons qualification requirements are appropriate for TRT members but are excessive for armed response personnel and for "static response positions" (e.g., operators of central and secondary alarm stations and security personnel which control entry or exit portals).

Response. This commenter is referring to the fact that physical fitness performance testing which was also contained in the proposed rulemaking (56 FR 65024) required Tactical

Response Team members to pass a more stringent test than guards and armed response personnel. This was because the TRT members duties were to perform offensive combative tasks as opposed to defensive combative tasks required of other security personnel. The NRC disagrees that this logic can also be applied to weapons qualification courses. It is recognized that physical capabilities required for Tactical Response Team members, armed response personnel, and guards to perform their duties satisfactorily vary depending upon job tasks. But, any armed response officer on site, regardless of duty station, could be involved in a violent confrontation requiring the use of his or her weapon, especially in areas of access or egress control. As a matter of fact, the reason that the 3-yard distance is included in the rule for weapon qualification for handguns is that violent confrontations which occur at access or egress locations are expected to be at close range. Also, the rule as written already limits the training to only assigned weapons. Therefore, the NRC has decided not to adopt this commenter's suggestion.

8. *Comment.* One commenter suggested that handgun qualification be limited to 25 yards or less because physical security personnel have shoulder fired weapons available for shots of greater distance.

Response. The NRC recognizes that the 50-yard distance is near the maximum distance at which a handgun is effective for the average shooter. However, the NRC believes that security officers should be familiar with handgun performance at greater distances because an adversary could penetrate the protected area in such a short period of time that the security officer may be tempted to use a handgun instead of retrieving a shoulder fired weapon. Because the current requirement in Appendix B of 10 CFR part 73 references the national police course, which requires a total of 24 shots fired, applying the final rule in Appendix H is actually a relaxation of the requirement because it calls for only 6 shots. For these reasons the NRC believes that the requirement is reasonable and has retained it in the final rule.

9. *Comment.* One commenter suggested that the position description in the handgun course be amended from "reload with six rounds" to "reload" because the automatic pistol will reload in a different manner than the revolver.

Response. The NRC agrees with this comment and Appendix H has been

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modified to reflect this suggested change in the final rule.

10. *Comment.* One commenter stated, without providing the rationale, that the timing for qualifying with handguns (stage 1 and 4, string 3) and for rifles (stage 2 at 25 yards) are unrealistic and additional time should be considered.

Response. The NRC believes that the times prescribed in the handgun qualification course of fire are justified. Although law enforcement statistics show that police officers seldom fire, reload, and continue a confrontation, the NRC Design Basis Threat ascribes greater capabilities to adversaries engaged in malevolent activities against Category I licensees than those typically encountered during law enforcement type engagements. The security officers must be able to manipulate their weapons skillfully and precisely. Being able to draw and reload quickly and efficiently while maintaining a continuity of fire under realistic time constraints is important for defense of a facility undergoing attack. Therefore, the NRC has retained the timing requirement for the reload position in the day firing qualification course.

11. *Comment.* One commenter suggested that the shotgun course allow the use of either 00 buckshot or rifled slugs because some facilities do not use rifled slugs.

Response. The NRC agrees with this comment and Appendix H has been modified accordingly.

12. *Comment.* One commenter suggested that footnote 4 of Appendix H of 10 CFR part 73 be amended to indicate that stages 5 and 6 of the rifle qualification course are to be used for .30 caliber or larger rifles. As it stands, only .30 caliber rifles would be used in stage 5 and stage 6.

Response. The NRC agrees that clarification is needed and footnote 4 of Appendix H has been modified to indicate that stages 5 and 6 pertain to rifles .30 caliber or larger.

13. *Comment.* One commenter requested that the position column of the rifle course, which requires the safety to be in the on position at the beginning of each string, be amended to allow the weapon to be uncocked with the magazine inserted. The weapon used by this commenter, the Colt AR-15, requires cocking in order to use the safety selector.

Response. The NRC agrees with this comment and has amended the final rule to delete the requirement that the safety be in the on position at the beginning of each string in the rifle qualification course of fire.

14. *Comment.* One commenter had a general comment concerning the

implementation schedule. This commenter stated that the amount of time allowed for implementation should be increased from 180 days to 1 year.

Response. The NRC believes that implementation of the new firearms qualification course within 180 days does not place an undue burden on its Category I licensees and has retained this implementation schedule.

Criminal Penalties

The Commission notes that these amendments are issued under sections 161 b and i of the Atomic Energy Act of 1954, as amended. Therefore, violation of these regulations may subject a person to criminal sanctions under section 223 of the Atomic Energy Act.

Use of Metric System by Nuclear Industry

On October 7, 1992 (57 FR 46202), the Commission issued a Policy Statement on Conversion to the Metric System by the Nuclear Industry. This policy states that all new regulations will be published in dual units. However the NRC has determined that there are no standards readily available in the United States for weapons firing courses measured in metric units and that it would be confusing and inappropriate to publish the day firing qualification courses in dual units. Therefore, the final rule retains the English units of measurement.

Finding of No Significant Environmental Impact: Availability

The NRC has determined under the National Environmental Policy Act of 1969, as amended, and the NRC's regulations in Subpart A of 10 CFR part 51, that this rule will not be a major Federal action significantly affecting the quality of the human environment and, therefore, an Environmental Impact Statement is not required. The rule does not adversely affect the routine release of radioactivity, exposure to radiation, or the safety of the operations carried out by licensees possessing formula quantities of strategic special nuclear material. The amendments specify new day firing qualification courses for armed Tactical Response Team members, armed response personnel, and guards to ensure that they are able to perform their assigned duties.

The environmental assessment and finding of no significant impact on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies are available from Mr. Harry Tovmassian, Office of Nuclear

Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3634.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0002.

The public reporting burden for this collection of information is estimated to average 31 hours per respondent, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0002), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The NRC has prepared a regulatory analysis for these amendments. The analysis examines the costs and benefits of the alternatives considered by the NRC and provides a decision rationale for the chosen approach. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Ms. Carrie Brown, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 504-2382.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rulemaking will not have a significant economic impact upon a substantial number of small entities. The rule affects two licensees who operate fuel fabrication facilities possessing formula quantities of strategic special nuclear material licensed in accordance with 10 CFR parts 70 and 73. The companies that own these facilities do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration in

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13 CFR part 121. Thus, this rule does not fall within the purview of the act.

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because these amendments do not impose requirements on existing 10 CFR part 50 licensees. Therefore, a backfit analysis was not prepared for this rule.

List of Subjects in 10 CFR Part 73

Criminal penalties, Hazardous materials—transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adopting the following amendments to 10 CFR part 73. This final rule is issued pursuant to Sections 161(b) and (i) of the Atomic Energy Act, as amended, and violation may be subject to criminal penalty sanctions.

58 FR 48424
Published 9/15/93

10 CFR Part 73

RIN 3150 — AD30

Day Firing Qualification Courses for Tactical Response Team Members, Armed Response Personnel, and Guards at Category I Licensees

Correction

In rule document 93-21129 beginning on page 45781 in the issue of Tuesday, August 31, 1993, make the following corrections:

1. On page 45781, in the first column in EFFECTIVE DATE, "February 28, 1993" should read "February 28, 1994".

§ 73.46 [Corrected]

2. On page 45785, in § 73.46(i)(1), in the first line, "November 29, 1993" should read "May 31, 1994".

58 FR 64110
Published 12/6/93
Effective 12/13/93

NRC Region III Telephone Number and Address Change

See Part 20 Statements of Consideration

59 FR 661
Published 1/6/94
Effective 2/7/94

10 CFR Part 73

RIN 3150 — AE93

Fingerprint Cards: Change in User Fee

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect an administrative change in the procedure for notifying licensees of changes in the user fee charged by the Federal Bureau of Investigation (FBI) for processing fingerprint cards as part of the criminal history checks that nuclear power reactor licensees are required to perform for those individuals granted unescorted access to an operating nuclear power facility or access to Safeguards Information. This notice also informs licensees of the new user fee adopted by the FBI effective January 3, 1994.

EFFECTIVE DATE: February 7, 1994.

FOR FURTHER INFORMATION CONTACT: C.H. Hendren, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 504-3209.

SUPPLEMENTARY INFORMATION:

Background

The provisions of 10 CFR 73.57 requires licensees to process fingerprint cards through the NRC to the FBI Criminal Justice Information Services Division which then does a criminal history check. A user fee for processing fingerprint cards was required by Congress (Pub. L. 99-399), is established by the FBI, and is periodically increased as the FBI's processing costs change.

Discussion

On December 3, 1993, the FBI's Division of Criminal Justice Information Services (CJIS) notified the Nuclear Regulatory Commission that the "user fee" charged by the FBI for processing fingerprint cards had been increased from \$23.00 to \$24.00 effective January 3, 1994. The FBI user fee includes a \$2.00 handling cost for the agency doing the initial screening of the fingerprint cards, and provides that the agency doing the initial screening retains that handling cost. In the case of nuclear reactor licensees, the NRC performs this initial screening. The user fee is periodically changed by the FBI, as their processing costs change.

Because this amendment pertains only to a user-fee change imposed by the FBI, the Commission for good cause finds that the notice and public procedure provisions of the Administrative Procedure Act are impractical and unnecessary. Comment will not serve to alter the FBI fee, which is outside the control of the NRC. Further, rather than engaging in an unnecessary rulemaking procedure to amend the rule every time the FBI changes the fee, this amendment removes the fee amount from the rule. The Commission will advise licensees directly when the FBI fee changes. A notice of the FBI fee change pertaining to NRC licensees will also be published in the Federal Register.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget under approval number 3150-0002.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to the action taken in this final rulemaking and, therefore, that a backfit analysis is not required for this final rule because this amendment does not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 73

Criminal penalties, Export, Hazardous materials transportation, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons stated in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 73.

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59 FR 14085

Published 3/25/94

Effective 5/31/94

*NRC Operations Center Commercial
Telephone Number Change*

See Part 20 Statements of Consideration

59 FR 17464

Published 4/13/94

Effective 4/4/94

*Consolidation of the NRC Region V
Office With the Region IV Office*

See Part 20 Statements of Consideration

59 FR 38347

Published 7/28/94

Effective 8/29/94

10 CFR Part 73

RIN 3150-AD30

Annual Physical Fitness Performance Testing for Tactical Response Team Members, Armed Response Personnel, and Guards at Category I Licensees

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations regarding annual physical fitness performance testing for Tactical Response Team members, armed response personnel, and guards at fuel cycle facilities possessing formula quantities of strategic special nuclear material (Category I licensees). This action is necessary to ensure that these personnel are able to perform their assigned duties under conditions of strenuous tactical engagements. Tactical Response Team members, armed response personnel, and guards at these facilities will be required to participate in a continuing physical fitness program and, according to new criteria, pass an annual performance test. As an alternative to the fitness program and the performance test, the licensee will be permitted to develop and submit for NRC approval a content-based site specific test, to be administered quarterly, and to justify that this test duplicates the response duties that are expected of Tactical Response Team members, armed response personnel, and guards in the event of a strenuous tactical engagement.

EFFECTIVE DATE: August 29, 1994.

FOR FURTHER INFORMATION CONTACT:

Harry S. Tovmassian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6231.

SUPPLEMENTARY INFORMATION:

Background

On December 13, 1991 (56 FR 65024), the Commission published proposed amendments to 10 CFR Part 73 that contained requirements relative to the physical fitness programs and day firing qualifications for security personnel at Category I fuel cycle facilities. Those amendments would have required Tactical Response Team (TRT) members, armed response personnel, and guards to participate in annual physical fitness performance testing and in a continuing physical fitness training program to ensure that these individuals achieve and maintain the required fitness level.

During the resolution of the public comments for those proposed amendments, the NRC concluded that an acceptable alternative to the approach specified in the proposed rule would be for licensees to develop and submit for NRC approval a site specific content-based physical fitness performance test. To provide the public the opportunity to comment on the modified requirements, the NRC published yet another proposed rule on the physical fitness performance testing requirements on October 6, 1993 (58 FR 52035).

Under the alternative included with the modified rule, the licensee will administer the test quarterly and justify that the test duplicates the response duties that a security force officer would perform during strenuous tactical engagements. The NRC recognizes that, in the absence of an ongoing physical fitness training program, the use of a content-based performance test may present risks of potential injury to security personnel. Each licensee should evaluate these risks of potential injury to unfit employees when choosing between the alternatives. The NRC will not object to the use of a content-based test on the basis of perceived risk of employee injury. Such risk of injury will be assumed by the licensee and/or the armed security persons.

The comment period expired on December 20, 1993, with no public comments being received. Therefore, the Commission is publishing the requirements proposed on October 6, 1993 (58 FR 52035), as a final rule without any modification.

Criminal Penalties

The Commission notes that these

amendments are issued under Sections 161 (b) and (i) of the Atomic Energy Act of 1954, as amended. Therefore, violation of these regulations may subject a person to criminal sanctions under Section 223 of the Atomic Energy Act.

Finding of no Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment, and therefore, an environmental impact statement is not required. The rule will not adversely affect either the safety of the operations carried out by licensees possessing formula quantities of strategic special nuclear material nor the routine release of, or exposure to, radioactivity. These amendments will specify (1) annual performance testing criteria and a minimum physical fitness training program or (2) a quarterly administered site specific content-based physical fitness performance test to assure that Tactical Response Team members, armed response personnel, and guards can adequately perform their duties under conditions of strenuous tactical engagement.

The environmental assessment and finding of no significant impact on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street, NW (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Mr. Harry Tovmassian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6231.

Paperwork Reduction Act Statement

This rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0002.

The public reporting burden for this collection of information is estimated to average 41 hours per licensee respondent, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for

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reducing this burden, to the Information and Records Management Branch (T6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0002), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this rule. The analysis examines the costs and benefits of the alternatives considered by the Commission and provides a decision rationale for the chosen approach. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street, NW (Lower Level), Washington, DC. Single copies of the regulatory analysis may be obtained from Ms. Carrie Brown, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-8092.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rulemaking will not have a significant economic impact upon a substantial number of small entities. The rule will affect two Category I licensees. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121. Thus, this rule does not fall within the purview of the act.

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule because these amendments do not impose requirements on existing 10 CFR Part 50 licensees. Therefore, a backfit analysis is not required for this rule.

List of Subjects in 10 CFR Part 73

Criminal penalties, Export, Hazardous materials transportation, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is adopting the following amendments to 10 CFR Part 73.

59 FR 38553
Published 7/29/94
Effective 8/29/94

10 CFR Part 73

RIN 3150-AF09

Temporary Access to Safeguards Information

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations concerning requirements for criminal history checks of individuals granted access to safeguards information. The final rule is a minor procedural change that corrects a defect in the rule that limits the Commission's authority to waive certain requirements and allow temporary access to safeguards information (SGI) pending completion of criminal history checks.

EFFECTIVE DATE: August 29, 1994.

FOR FURTHER INFORMATION CONTACT: N.E. Ervin, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 504-2946.

SUPPLEMENTARY INFORMATION:

Background

Section 606 of Public Law 99-399, "The Omnibus Diplomatic Security and Anti-Terrorism Act of 1986," added Section 149, "Fingerprinting for Criminal History Record Checks," to the law that requires nuclear power reactor licensees and applicants to conduct criminal history checks through the use of FBI criminal history data on each individual who is permitted unescorted access to the facility or is permitted access to safeguards information. Section 149.b states, "The Commission, by rule, may relieve persons from the obligations imposed by this section, under specified terms, conditions, and periods, if the Commission finds that such action is consistent with its obligations to promote the common defense and security and to protect the health and safety of the public."

NRC implementing regulations were published March 2, 1987, as a new § 73.57 to 10 CFR Part 73 entitled, "Requirements for Criminal History Checks of Individuals Granted Unescorted Access to a Nuclear Power Facility or Access to Safeguards Information by Power Reactor Licensees." Relief from the requirements for certain situations is provided in § 73.57(b)(2)(iv) which

states: "Upon further notice to licensees and without further rulemaking, the Commission may waive certain requirements of this section on a temporary basis for temporary workers." In Generic Letter 87-10, "Implementation of 10 CFR 73.57, Requirements For FBI Criminal History Checks," the NRC staff addressed certain conditions under which these waivers may be granted. The defect that has been identified is that waiver authority is limited to temporary workers and excludes relief for permanent workers. This limitation creates questions about applying the waiver to permanent workers who may need access to safeguards information pending completion of their criminal history checks.

This final rule amends 10 CFR 73.57 to clarify the Commission's authority to temporarily waive certain requirements of the section without further rulemaking as provided by Public Law 99-399. Specifically, the final rule removes the phrase, "for temporary workers," from 10 CFR 73.57(b)(2)(iv).

Correcting this defect provides the Commission with the authority to temporarily waive certain requirements for permanent workers as well as temporary workers. Permanent workers will be able to have access to safeguards information before the results of their FBI criminal history checks have been received and evaluated. This relieves an unnecessary and unreasonable burden on licensees. Permanent employees recently assigned to the site and granted unescorted access based on temporary access provisions, pending completion of criminal history checks, may now have access to SGI. Without this amendment, these employees would be precluded from tasks for which access to SGI is necessary until the results of the criminal history checks were complete. This amendment is consistent with the waiver provisions that allow temporary workers, under the same circumstances, access to SGI when this access is needed for specified tasks.

Because this amendment is a minor procedural change that corrects an administrative defect in the rule, notice of proposed rulemaking and public procedures on the subject are impractical and unnecessary under 5 U.S.C. 553. This amendment is effective 30 days after publication in the Federal Register.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described

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as a categorical exclusion in 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501, et seq.). Existing requirements were approved by the Office of Management and Budget under control number 3150-0002.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to the action taken in this final rulemaking and therefore, that a backfit analysis is not required for this final rule.

List of Subjects in 10 CFR Part 73

Criminal penalties, Export, Hazardous materials transportation, Import, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendment to 10 CFR part 73.

59 FR 38889
Published 8/1/94
Effective 8/31/94

10 CFR Part 73

RIN 3150-AE81

Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its physical protection regulations for operating nuclear power reactors. The amendments modify the design basis threat for radiological sabotage to include use of a land vehicle by adversaries for transporting personnel and their hand-carried equipment to the proximity of vital areas and to include a land vehicle bomb. The amendments also require reactor licensees to install vehicle control measures, including vehicle barrier systems, to protect against the malevolent use of a land vehicle. The Commission believes this action is prudent based on an evaluation of an intrusion incident at the Three Mile Island (TMI) nuclear power station and a bombing of the World Trade Center. The objective of this final rule is to enhance reactor safety by protecting against the use of a vehicle to

gain unauthorized proximity to vital areas. Further, the amendments will enhance reactor safety by protecting vital equipment from damage by detonation of a large explosive charge at the point of vehicle denial.

EFFECTIVE DATE: August 31, 1994.

FOR FURTHER INFORMATION CONTACT: Phillip F. McKee, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC, telephone (301) 504-2933.

SUPPLEMENTARY INFORMATION:

Background

On November 4, 1993 (58 FR 58804), the Commission published a proposed rule in the *Federal Register* for public comment that presented amendments to the physical protection requirements for operating commercial nuclear power reactors. The amendments proposed to modify the design basis threat for radiological sabotage to include use of a land vehicle by adversaries for transporting personnel, hand-carried equipment, and/or explosives. A total of 35 letters of public comment were received from respondents representing more than 160 individual comments. Comments received in association with a public meeting conducted by the NRC on May 10, 1993, on this same topic have also been analyzed as part of this final rulemaking. An additional 11 comments were received as a result of the meeting, representing an additional 38 individual comments. Written comments received from the Advisory Committee on Reactor Safeguards (ACRS) and public comments made at a February 10, 1994, meeting of the ACRS are also addressed under the following analysis. Copies of the public comments received on this proposed rule are available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC.

Public Comment Analysis

General

Public comment on the rule was received from 25 licensees that operate commercial nuclear power reactors; two industry groups, the Nuclear Management and Resources Council (NUMARC) and the Nuclear Utility Backfitting and Reform Group (NUBARG); two public citizens and one citizen's group, Ohio Citizen's for Responsible Energy; two advocacy groups, the Nuclear Control Institute (NCI) and the Committee to Bridge the Gap; one State nuclear safety agency; and two vendors.

Additional comments were received as a result of an NRC-sponsored public

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meeting of May 10, 1993. Comments were received from eight private citizens (the letter from one enclosed a petition signed by 40 individuals); two utilities; and one public interest group, Ohio Citizens for Responsible Energy. The proposed rule indicated that comments regarding malevolent use of vehicles submitted in association with the meeting would be treated under this final rule and that duplicate comments need not be submitted. Many of these respondents recommended strengthening the design basis threat to cover the maximum credible threat and increasing the number of security force members at power reactor sites as the best method to counter a terrorist vehicle bomb attack. The aforementioned petition, submitted to the Chairman of the NRC, indicated, among other things, that Congress should strengthen safeguards at nuclear facilities and should legislate the use of Federal guards at NRC-licensed sites. Comments received from 2 utilities that operate commercial nuclear power reactors either indicated support for the then-developing NUMARC comments or were similar to comments received on the proposed rule.

A variety of general comments were received on the proposed rule and supporting documentation. Several strongly supported the rulemaking as proposed and expressed the view that rulemaking on this topic was the proper, proactive approach. A number of comments strongly supported a belief that vehicle intrusion and vehicle bomb threats exist. These comments refer to the Three Mile Island intrusion event and the World Trade Center bombing event as evidence of these threats. The NCI commented that the rule was long overdue. Some of those that supported the rule offered more detailed comments proposing further expansion of the design basis threat and placing more rigid controls on licensee actions to implement the rule.

NUMARC provided detailed comments on behalf of the industry. Fourteen utilities confirmed their support or agreement with NUMARC's comments. NUMARC commented that industry believes that it is important to deter unauthorized land vehicle penetration challenges to a licensee's protected area and that industry recognizes that facilities must be able to shut down safely in the unlikely event of the detonation of an explosive device outside the protected area. NUMARC considers these actions to be prudent for the protection of its employees, investment, and public confidence. NUMARC commented that because the NRC (as expressed in the proposed rule)

and NUMARC agree in principle, the issue should be addressed in an integrated manner using a reasonable and realistic approach without imposing unnecessary conservatism. The details of NUMARC's comments identified areas where they considered the proposed rule took too conservative an approach. NUMARC also expressed general concerns about the backfit justification for the rule and the schedule for implementation.

NUBARG, whose members include 15 nuclear utilities, provided comments that generally challenge the backfitting and regulatory analyses based on their concerns that the analyses did not provide a sufficient quantified basis for finding the requisite "substantial increase" in safety under the NRC's backfitting rule. Two of the comment letters provided by utilities confirmed their support or agreement with NUBARG's comments.

Several comments expressed the view that the proposed rule could not be substantiated based on the current threat. As support for this position, comments referred to conclusions reached by the NRC in denial of a 1991 petition for rulemaking to require licensees to protect against truck bombs. Other comments indicated that two isolated events (the Three Mile Island intrusion event and World Trade Center bombing) did not justify rulemaking, particularly in light of the fact that the Federal Bureau of Investigation (FBI), by their account, does not support the position that the threat of malevolent use of vehicles has increased and the NRC position is that no actual vehicle bomb threat against power reactors exists.

Several comments opposed the proposed rule because they considered that it did not provide a substantial increase in protection of public health and safety or common defense and security at a justifiable cost. Other comments indicated that the rule was extreme and unnecessarily burdensome with little if any safety benefit and that contingency plans for vehicle bombs currently in place adequately addressed the threat of malevolent use of vehicles.

The NRC staff presented the proposed rulemaking package to the Security Subcommittee of the Advisory Committee on Reactor Safeguards (ACRS) on November 3, 1993, and the full committee on November 4, 1993. The full committee was briefed on December 10, 1993, in a closed session, by the Director, Office of Nuclear Material Safety and Safeguards. Following these briefings, ACRS's December 10, 1993 letter to the Chairman raised concerns about the

rulemaking, particularly the justification for the rule, the lack of a quantitative risk assessment to support it, and the expedited nature of the rulemaking. A minority of four members of the ACRS expressed a view that the proposed rule represents a prudent and effective step toward enhancing public health and safety. On February 10, 1994, the ACRS heard presentations on the rulemaking from the NUMARC, the NCI, one public citizen, and the NRC staff members. On April 7, 1994, the staff briefed the ACRS in a closed session regarding additional, quantitative evaluations that supported this rulemaking. Issues raised by the ACRS in their December 10, 1993, letter are encompassed by issues raised by the public and are addressed in the following responses.

Like the ACRS, NUMARC, NUBARG, and numerous utilities expressed concern that the safety benefit was not adequately justified or quantified. They challenged the validity of the regulatory and backfit analyses because of lack of quantification of the threat. They contended that the analyses contain no quantified risk data or safety goal evaluation to support the conclusion that the proposed regulations result in a substantial increase in public health and safety. Another comment, while acknowledging the potential difficulty in quantification of the threat, stated that the analyses were no more than "conclusionary" and fall short of demonstrating the requisite substantial increase in radiological safety.

The Commission notes that the use of probabilistic risk assessment (PRA) as a tool for estimating risk is sound when based on results from demonstrable, repeatable events and test data—for example, establishing the probability of failure and the mean time to failure for aircraft wing root structures due to metal fatigue or for valve failures due to water hammer or corrosion, etc. The NRC has examined the use of PRA to predict sabotage as an initiating event and concluded that to do so would not be credible or valid because terrorist attacks, by their very nature, may not be quantified. Past attempts to apply PRA techniques to acts of sabotage have resulted in similar findings. For example, in 1978, NUREG/CR-0400, the "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission" stated, "it was recognized that the probability of sabotage of a nuclear power plant cannot be estimated with any confidence." For this same reason, according to this report, consideration of risk of sabotage was deliberately omitted in the Reactor Safety Study (WASH-1400).

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In the "Policy Statement on Safety Goals for the Operation of Nuclear Power Plants" published on March 14, 1983 (48 FR 10772), the Commission stated:

The possible effects of sabotage or diversion of nuclear materials is not presently included in the safety goal. At present there is no basis on which to provide a measure of the risk of these matters. It is the Commission's intention that everything that is needed shall be done to keep such risks at their present, very low, level; and it is our expectation that efforts on this point will continue to be successful. With these exceptions it is our intent that the risk from all various initiating mechanisms be taken into account to the best of the capability of the current evaluation techniques.

In the 1983 Indian Point licensing hearings, the NRC staff testified that PRA is unable to predict the probability of sabotage as an initiating event. Also, in a June 11, 1991, petition to institute an individual plant examination program for threats beyond the design basis, the NCI stated a position similar to the NRC's by recognizing that PRA-type methods cannot be used to analyze for core damage frequency since one cannot quantify the likelihood of a terrorist attack.

The Commission continues to believe that arbitrary selection of numbers to "quantify" threat probability without demonstrable, actual, supporting event data would yield misleading results at best. Knowledgeable terrorism analysts recognize the danger and are unwilling to quantify the risk. Over the past several years, a number of National Intelligence Estimates have been produced addressing the likelihood of nuclear terrorism. The analyses and conclusions are not presented in terms of quantified probability but recognize the unpredictable nature of terrorist activity in terms of likelihood. The NRC continues to believe that, although in many cases considerations of probabilities can provide insights into the relative risk of an event, in some cases it is not possible, with current knowledge and methods, to usefully quantify the probability of a specific vulnerability threat.

The NRC notes that, although not quantified, its regulatory analysis recognizes the importance of the perception of the likelihood of an attempt to create radiological sabotage in assessing whether to redefine adequate protection. The NRC's assessment that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry was an important consideration in concluding that neither the Three Mile Island intrusion nor the World Trade

Center bombing demonstrated a need to redefine adequate protection.

The NRC does not agree that quantifying the probability of an actual attack is necessary to a judgment of a substantial increase in overall protection of the public health and safety (a less stringent test of the justification for a rule change). Inherent in the NRC's current regulations is a policy decision that the threat, although not quantified, is likely in a range that warrants protection against a violent external assault as a matter of prudence.

The potential threat posed by malevolent use of vehicles as part of a violent external assault and the need to protect against it have been the subject of detailed consideration and reconsideration by the Commission for more than fifteen years. The original requirements for physical security at power reactor sites proposed in the mid-1970s included a requirement for barriers to prevent ready access to vital areas by ground vehicles. The Commission decided not to include the requirement at that time.

The Commission reexamined the vehicle issue in great detail in the 1980s. In 1986, the Commission concluded that, even though perimeter chain link fences would not prevent vehicle intrusion, the requirement for prompt response by guards armed with shoulder-fired weapons would limit actions of intruders. In reconsidering the risk from use of a vehicle to gain proximity to vital areas, the NRC's regulatory analysis does not suggest that the likelihood of a violent external assault has increased. Rather, the staff focussed its regulatory analysis on whether a vehicle could provide an advantage to an adversary with the characteristics of the design basis threat.

The NRC assessed lessons learned from the TMI intrusion and concluded that a vehicle could provide advantages to an adversary not previously considered. In SECY-86-101, "Design Basis Threat—Options for Consideration," March 31, 1986, the NRC concluded that, even though perimeter chain link fences would not prevent vehicle intrusion, the requirement for prompt response by guards armed with shoulder-fired weapons would limit actions of intruders. Accordingly, in 1986, the NRC concluded that the installation of vehicle barriers might not constitute a substantial overall increase in the protection of public health and safety. More recently, the NRC has analyzed the capability of existing licensee security measures to protect against a violent external assault that includes a vehicle as a mode of transportation.

These new analyses support the NRC's conclusions in the regulatory analysis for the proposed rulemaking. The NRC believes that the vehicle intrusion issue alone warrants the installation of vehicle barriers at nuclear power plants.

In the 1980s, the NRC also consulted with other Federal agencies, including the National Security Council, regarding the use of vehicle bombs in the Middle East and their possible impact on the domestic threat situation. In June 1988, the NRC decided that it would not be necessary to change the design basis threat for radiological sabotage (10 CFR 73.1(a)(1)) nor to require long-range planning by power reactor licensees for permanent protection against land vehicle bombs. However, as a matter of prudence, it directed development of NRC and licensee contingency plans for dealing with a possible land vehicle bomb threat to power reactors, should one arise.

On June 11, 1991 (56 FR 26782), the Commission denied a petition for rulemaking to revise the design basis threat to include explosive-laden vehicles (PRN-73-9). In denying that petition, the NRC noted that the decision was based, in part, on the fact that only one truck bomb attack (1970) had occurred in the United States; there had been no other vehicle bomb attacks in the Western Hemisphere; there had been none outside areas of civil unrest; and there had been none directed against a nuclear activity. The vehicle bomb attack on the World Trade Center represented a significant change to the domestic threat environment that changed many of the points used in denying the petition and eroded the basis for concluding that vehicle bombs could be excluded from any consideration of the domestic threat environment. For the first time in the United States, a conspiracy with ties to Middle East extremists clearly demonstrated the capability and motivation to organize, plan, and successfully conduct a major vehicle bomb attack. Regardless of the motivations or connections of the conspirators, it is significant that the bombing was organized within the United States and implemented with materials obtained on the open market in the United States. Accordingly, the Commission believes that the threat characterized in the final rule is appropriate.

As a result of the World Trade Center bombing, the NRC believes that the construction of a vehicle bomb is more likely to develop without advance indications. The NRC does not believe that it can quantify the likelihood of vehicle bomb attack. However, it has

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performed a conditional probabilistic risk analysis for an existing power reactor site, assuming an attempt to damage a nuclear power plant with a design basis vehicle bomb placed at locations within the protected area that would create the greatest risk to public health and safety. The analysis indicated that the contribution to core damage frequency could be high.

Barriers installed to protect against vehicle intrusion into protected areas would also protect, to varying degrees, against vehicle bombs. The NRC believes that adjusting the location of barriers where necessary to ensure a capability of protecting vital equipment against a design basis vehicle bomb would provide an additional, substantial increase in the overall protection of the public health and safety. Further, the NRC believes that the incremental costs to licensees to analyze the degree of protection against a vehicle bomb and to make adjustments in vehicle control measures in limited cases are justified, particularly considering the provisions in the rule allowing licensees to propose alternative measures if a site-specific analysis indicates that the costs of fully meeting the rule's design goals and criteria are not justified by the added protection that would be provided. The NRC's additional deterministic evaluations and limited probabilistic assessments have supported the NRC's earlier findings that protecting against vehicle intrusion and a vehicle bomb would substantially increase the overall protection of public health and safety. The NRC has updated the regulatory analysis to include these evaluations.

Additional issues raised and the NRC response to these issues are provided in the sections listed below that follow:

I. Threat Considerations

A. Coupling Vehicle Intrusion and Vehicle Bomb Threat

B. Characteristics of Design Basis Vehicle/Explosive

C. "Margin of Prudence"

D. Design Basis Threat Re-Evaluation

E. Applicability of 10 CFR 50.13

F. "Threat" or "Alert" Program

II. Regulatory and Backfit Analyses

A. Redundant Engineered Safeguards Systems

B. Peer Review of Analyses

C. Clarification

III. Rule Implementation

A. Schedule

B. NRC Review and Approval of Submittals

C. Vehicle Barriers

D. Passive Vehicle Barriers

E. Active Vehicle Barriers

F. Alternative Measures to Protect Against Explosives

IV. NRC Inspection

V. Miscellaneous

A. Research Reactors

B. Independent Spent Fuel Storage Installations

C. Office of Management and Budget Supporting Statement

I. Threat Considerations

A. Coupling Vehicle Intrusion and Vehicle Bomb Threat

Comment. NUMARC and several utilities commented that the proposed rule unnecessarily linked vehicle intrusion with a vehicle bomb. NUMARC commented that the proposed rule contemplates that the intruding vehicle would be fully loaded with personnel, equipment, and a large explosive device. NUMARC also commented that any considerations of a vehicle bomb should be for a stationary vehicle. NUMARC stated that coupling the vehicle intrusion event and vehicle bomb event added unnecessary conservatism. For example, to protect against a moving vehicle, bomb barriers would, in some cases, need to be more substantial to stop penetration of vehicle. NUMARC proposed that the revised design basis threat should include either a land vehicle intrusion or a detonation of explosives outside the protected area, but not a combination of the two. Along this same line, one comment expressed the opinion that the proposed language implies the need to protect against a vehicle used for transport, not for breaching a barrier or for use as a truck bomb.

Another comment expressed a concern that a major defect in the rule is the lack of the assumption that the adversary could blast away a fence if a licensee were to choose to use, for example, cabling in the fence as the means to stop a vehicle. The respondent proposed that any barrier should be a heavy mass which would be resistant to destruction.

Response. The Commission agrees with the NUMARC comment that the proposed rule could be read to imply that licensees would be required to provide protection against an intrusion by adversaries using a vehicle for transportation coincident with a vehicle bomb. This was not the intent and the rule wording has been revised to clarify this point. Commission deliberations on the rule have considered use of the vehicle as transportation for an adversary and a vehicle bomb as separate threats to be protected against. Any coupling of adversary tactics associated with the rule was intended to allow for more efficient and cost effective protection against either a vehicle intrusion to gain rapid access to vital areas, as a single act, or against a vehicle bomb.

Meeting the requirements of the final rule will result in substantial protection from a vehicle bomb whether it is moving or stationary. The NRC's regulatory analysis indicated that, because of the short distances between vital areas and portions of some protected area boundaries, protection against a vehicle at those boundaries would be inconsistent with NUMARC's stated goal of being able to safely shut down a plant following the detonation of an explosive device outside the protected area.

Regarding the comment that the rule should include the assumption that adversaries may use devices to destroy less substantial barriers and then gain access, the Commission does not agree that this assumption should be included in the rule. The NRC assessment of the threat environment does not support this assumption. Further, use of such a technique by an adversary would tend to diminish one of the major advantages of use of a vehicle—the element of surprise.

B. Characteristics of Design Basis Vehicle/Explosive

Comment. NUMARC provided a detailed proposal for characteristics of a design basis vehicle that could be used to attempt penetration of a nuclear power plant protected area and a design basis bomb that could be used in an attempt to damage plant equipment. Other comments indicated that vehicle speed should take into consideration terrain and seasonal conditions and that the proposed vehicle explosive device size was excessive and not justified by historical experience, particularly that in the United States.

Response. The Commission notes that it has relied on analogous historical data when enumerating the attributes of a design basis threat because there has never been a terrorist attack on an NRC-licensed power reactor facility or a credible threat of an attack. This was the methodology used in formulating the original design basis threat statements in the late 1970s, and it was used in defining the proposed design basis vehicle threat. The design basis vehicle was defined after examining several hundred actual vehicle bombing attacks occurring worldwide during approximately the past decade. Historical data indicates that vehicle bombs, similar to the design basis vehicle, have been used in the past and their use can reasonably be expected to continue to occur in the future. The Commission has made some changes in the detailed characteristics of the design basis vehicle. The revised characteristics will require licensees to

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provide substantial protection against a moving vehicle bomb. In addition, the NRC's implementation guidance discusses how the design of barrier systems can account for site-specific limits on the speed that a vehicle could attain because of factors such as terrain.

Comment. One comment expressed confusion over reference to the design basis vehicle as a "4-wheel drive vehicle" in that this could imply that non 4-wheel drive vehicles would not have to be protected against. The comment recommended that the final rule language be changed to require protection against all land vehicles.

Response. The Commission disagrees that the term "4-wheel drive vehicle" needs clarification. It reasons that protection against intrusion by a 4-wheel drive vehicle encompasses protection against a land vehicle with less than 4-wheel drive.

Comment. Other comments noted that the regulatory language should be changed to remove reference to equipment and explosives capable of being hand-carried, as opposed to that which the vehicle could carry.

Response. As stated previously, this issue is being clarified by a revision of the design basis threat statement to separate the threat of intrusion versus vehicle bomb. In an intrusion event, the vehicle is obviously capable of transporting the equipment and explosives proposed to be hand-carried by an adversary. While the vehicle could carry more equipment than can be carried by the persons being transported, it is unlikely that this additional equipment would be of use to the adversaries. The vehicle is essentially a means of transport for the adversaries, and it is unlikely that once adversaries have left the vehicle they would be able to return to obtain additional equipment or explosives.

Comment. One utility provided specific questions regarding several assumptions associated with the vehicle bomb. These included whether:

The vehicle is under control by adversaries up to the point of detonation;

The vehicle bomb automatically detonates when the adversary loses control of the vehicle or after a pre-defined time period;

The vehicle is used in combination with a secondary external event, e.g., loss of offsite power; and,

Point of detonation, i.e., crash point or at a later point as vehicle rolls towards a facility.

Response. With respect to a vehicle bomb, for analysis purposes the device would be considered to detonate at the point where the vehicle impacted the

vehicle barrier system. Whether adversaries still have control of the vehicle or whether the detonation of the device is delayed should have little impact on the analysis of the effect of the explosive blast. Because the barrier system is intended to protect against vehicles gaining proximity to vital areas, the barrier system should not allow a vehicle to fully penetrate it and continue to roll towards a facility.

With respect to a secondary external event, power reactor licensees must protect against all capabilities and attributes described by the design basis threat for radiological sabotage. This would not include protection against other natural events, such as damage from a hurricane, coincident with a sabotage threat. However, with respect to loss of off-site power, licensees should consider its loss, if vital equipment is assumed damaged, in their analysis of the effects of a vehicle bomb. This consideration is compatible with the basic premise that equipment not designated and protected as vital is vulnerable to damage and is not available.

C. "Margin of Prudence"

Comment. NUMARC and several utilities commented on NRC's use of the term "margin of prudence" as the basis for support of the proposed rulemaking. NUMARC commented that it is inappropriate to use such an undefined concept as a basis for rulemaking. These comments indicated that NRC expansion into matters of prudence is unwarranted and would result in expansion of the NRC's sphere of regulatory influence beyond plant safety.

Response. Use of the term "margin of prudence" must be put in perspective as used by the NRC in this rulemaking. The NRC requires an established level of security at nuclear power reactor sites as a provision against possible security contingencies that might arise. The NRC has concluded that a satisfactory level of security is one that is designed and implemented to protect against a hypothetical threat (design basis threat) that contains certain adversary attributes. These attributes have been selected based on Commission analyses of actual terrorist attributes and on judgment. The term "margin of prudence" was used in recent Commission deliberations to suggest that the World Trade Center bombing and the Three Mile Island intrusion had caused a change in the domestic threat environment or in the NRC's understanding of the sabotage threat that was not satisfactorily addressed by the existing design basis threat. Further,

the term was used to suggest that a modification of the design basis threat was necessary to reestablish a level of security commensurate with the nature of security contingencies that might arise. Its use was illustrative only of the relationship between an actual threat and the hypothetical design basis threat and the change in that relationship caused by the World Trade Center and Three Mile Island events. The NRC intended no wider or expanded use of the term.

D. Design Basis Threat Re-Evaluation

Comment. NUMARC and several utilities commented that the revision to the design basis threat to address malevolent use of vehicles should be addressed in an integrated manner so that rulemaking on this topic would not be impacted after completion of an ongoing, more comprehensive review of the design basis threat. Other comments expressed concerns about deficiencies in the design basis threat that need to be addressed. Deficiencies identified by these comments included: protection against more than one insider, protection against a larger number of external attackers, capability of attackers to operate as more than one team, and use of aquatic vehicles. One comment was made that ongoing considerations for reductions in the insider requirements should be part of the overall reconsideration of the design basis threat.

Response. The Commission notes that use of a vehicle by adversaries was addressed under Phase I of a re-evaluation of the design basis threat which the NRC began in the Spring of 1993. This phase of the re-evaluation has been completed. Other attributes associated with the design basis threat, such as those characterized in comments on the proposed rule, have been reviewed and considered as part of Phase II of the re-evaluation. NRC staff recommendations on this part of the re-evaluation were provided to the Commission in a classified paper on March 15, 1994.

E. Applicability of 10 CFR 50.13

Comment. NUMARC, NUBARG, and several utilities stated that the proposed change in the design basis threat to include malevolent use of a vehicle amounts to escalation of the threat to efforts by an enemy of the United States. The comments contended that the proposed changes to the design basis threat are, therefore, in conflict with 10 CFR 50.13, which specifies that licensees are not required to provide for design features to protect against attacks and destructive acts by an enemy of the

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United States. One comment recommended that NRC should re-evaluate the design basis threat assumption to now include foreign enemies of the United States.

Response. In 10 CFR 50.13, which was promulgated on September 26, 1967 (32 FR 13445), the regulations provide that applicants for construction permits, operating licenses, or amendments thereto, need not provide for design features or other measures to protect against the attacks or destructive acts, including sabotage, by an enemy of the United States. The issue raised in a contested application for a power reactor construction permit, which led to the promulgation of 10 CFR 50.13, was whether the reactor should be constructed to withstand a missile attack from Cuba. There is a significant difference in the practicality of defending against a missile attack and constructing a vehicle barrier at a safe standoff distance from vital areas.

The statement of considerations for 10 CFR 50.13 makes it clear that the scope of that regulation is to relieve applicants of the need to provide protective measures that are the assigned responsibility of the nation's defense establishment. The Atomic Energy Commission recognized that it was not practical for the licensees of civilian nuclear power reactors to provide design features that could protect against the full range of the modern arsenal of weapons. The statement concluded with the observation that assessing whether another nation would use force against a nuclear power plant was speculative in the extreme and, in any case, would involve the use of sensitive information regarding both the capabilities of the United States' defense establishment and diplomatic relations.

The new rule, with its addition to the design basis threat and added performance requirements, is in response to a clearly demonstrated domestic capability for acts of extreme violence directed at civilian structures. The participation or sponsorship of a foreign state in the use of an explosives-laden vehicle is not necessary. The vehicle, explosives, and know-how are all readily available in a purely domestic context. It is simply not the case that a vehicle bomb attack on a nuclear power plant would almost certainly represent an attack by an enemy of the United States, within the meaning of that phrase in 10 CFR 50.13.

Further, characterizing the threat as "para-military" adds little to the understanding of the intent of 10 CFR 50.13. "Para-military" suggests an armed, trained group acting outside of a legally constituted military

organization. In that sense, the design basis threat prior to this amendment already described a "para-military" group. "Para-military" groups of entirely domestic origin exist. Accordingly, the amended regulation and supporting analyses need not address 10 CFR 50.13, either on the grounds that a vehicle bomb attack is an attack by an enemy of the United States or the action of a "paramilitary" group. That regulation is irrelevant to the present rulemaking.

The implication of the comments regarding 10 CFR 50.13 is that the simple addition of a vehicle bomb to the design basis threat should shift the function of providing physical security for nuclear power plants from the licensee to the Federal Government. The respondents present no real evidence or persuasive arguments for such a radical change in the regulatory environment.

F. "Threat" or "Alert" Program

Comment. One comment suggested that the NRC develop and implement a "threat or alert" program similar to the Department of Defense's Defense Condition "DEFCON" program. It was recommended that, under such a program, the NRC would immediately notify the industry when information is received from the intelligence community of an impending security alert and provide a recommended level of action. Licensees, in turn, would be required to develop security response plans based on NRC-established threat levels.

Response. The Commission believes that its current Information Assessment Team approach for notifying licensees of significant events has been effective in disseminating and coordinating such information. The Information Assessment Team (IAT) assesses in a timely manner reported threats to NRC-licensed facilities, materials, and activities to determine credibility and make recommendations to NRC management. The IAT is composed of experienced Headquarter's and Regional staff who are on-call 24 hours a day and bring a variety of expertise to the assessment process, such as reactor systems, site specific information, and liaison with other Federal agencies, including close coordination with the Department of Energy on threat advisories to the utility industry and NRC licensees. The IAT was established in 1976, and since that time has supported NRC decision makers responding to a range of threats, from bomb threats against reactors to times of international tension during Operation Desert Shield and Storm. For example, coordinated threat advisories related to

the latter were issued by the IAT on August 24, 1990, January 9, 1991, and April 2, 1991. However, the NRC does not believe that the IAT is an adequate alternative to vehicles barriers at nuclear power plants.

II. Regulatory and Backfit Analysis

A. Redundant Engineered Safeguards Systems

Comment. One comment indicated that the proposed rule did not adequately take into consideration the existing engineered safeguards systems installed at nuclear power plants. The comment was made that unauthorized access and possible damage to any one vital area does not necessarily prevent the safe shut down of the nuclear reactor.

Response. The Commission agrees that consideration should be given to engineered safeguards systems and believes that flexibility has been built into the rule to allow for consideration of such existing systems. The redundancy and diversity of existing engineered safeguards systems was considered in the NRC analysis of the capability of existing licensee security measures to protect against a violent external assault that includes a vehicle as a mode of transportation. Specific plant equipment layout can be a factor in protective considerations against a vehicle bomb. Equipment that is redundant or provides backup to equipment assumed to be damaged by a vehicle bomb may be considered in the analysis for determining whether protective measures established to protect against vehicle intrusion fully meet the design goals and criteria for protection against a land vehicle bomb.

B. Peer Review of Analysis

Comment. One comment recommended that any research results, risk analyses, cost calculations and other work by the NRC should be subject to peer review.

Response. The NRC believes that its work is subject to various types of review and, in a sense, is subject to peer review. Portions of the risk analyses were conducted by groups with appropriate expertise, including threat assessment, physical security system performance evaluation, critical target set analysis, safety system inspections, probabilistic risk analysis, vehicle barrier design, and vehicle bomb analysis. In addition, the types of efforts mentioned by the comment are often the subject of multiple office review within the NRC. Several technical review groups, both within and external to the NRC, provide further consideration of

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NRC staff work. Finally, with respect to rulemaking, analyses are the subject of public comment.

C. Clarification

Comment. One comment noted that the wording associated with the backfit analysis in the proposed **Federal Register** notice did not precisely coincide with that found under 10 CFR 50.109 (a)(3).

Response. The Commission notes that the wording in the notice is wording that is used for most NRC rules that are subject to backfitting. The Commission considers that this wording is consistent with the requirement cited.

III. Rule Implementation

A. Schedule

Comment. A large number of comments were received on the schedules associated with the proposed rule. Some indicated that the proposed schedule to submit a summary description of the barrier system and results of vehicle bomb comparison within 90 days was not long enough. One comment was received supporting the proposed schedule. Those commenting that the schedule was too tight expressed concern that 90 days did not provide sufficient time to perform a thorough design analysis, particularly if alternative measures were to be proposed. NUMARC, and several other respondents, recommended that licensees be provided 180 days after issuance of the rule to provide a summary description of the barrier system.

A number of comments were also received stating that the proposed schedule to confirm implementation within 360 days after issuance of the rule was not long enough. Those commenting that the schedule for completion of installation was too tight expressed concern that the schedule did not adequately account for material procurement and availability, outage schedules, and weather circumstances. NUMARC and several other respondents recommended that licensees be provided 18 months after issuance of the rule to complete installation of measures to meet the rule. A few comments were received that recommended that implementation schedules be established on a case-by-case basis.

Response. The Commission agrees that an extension to the schedule is reasonable based on the fact that this is a new program for power reactor sites, that there may be some difficulty in procurement of active vehicle barrier systems, and that possible deleterious

effects on scheduling may result from the weather or planned outages. Accordingly, the time period for submission of the summary required by 10 CFR 73.55(c)(9)(i) is extended from 90 to 180 days from the effective date of the rule. The implementation period required under 10 CFR 73.55 (c)(9)(ii) is extended from 360 days to 18 months from the rule's effective date.

B. NRC Review and Approval of Submittals

Comment. Three comments recommended that the NRC should review and approve all licensee submittals, including the summary description of the proposed measures to protect against vehicle intrusion, the results of the vehicle bomb comparison, and, for applicable licensees, alternative measures to protect against an explosive device.

Response. The NRC believes that approval of all summaries submitted under 10 CFR 73.55(c)(9)(i) would unnecessarily delay expeditious implementation of this rule. All licensees are required to amend their physical security plans to commit to the implementation and use of the vehicle barrier system described by the regulations. These commitments are fully inspectable and enforceable by the NRC. The NRC would review and approve the limited number of requests expected to use alternative measures that might not fully meet the design goals and criteria for protection against a vehicle bomb. The final rule has been changed to clarify that proposals for alternative measures be submitted in accordance with the provisions of 10 CFR 50.90.

C. Vehicle Barriers

Comment. NUMARC and several other respondents expressed concern that barrier systems would be required to be "nuclear grade" and that this would unnecessarily escalate costs. Another comment expressed the opinion that, instead of licensees certifying to the NRC that vehicle barriers meet requirements, they be able to choose barriers from some pre-approved list. NUMARC commented that design and certification needed to utilize existing technology and barrier device test results, or costs would unnecessarily escalate. NUMARC also requested that the discussion in the Regulatory Guide be expanded to describe flexibility available to licensees in designing and installing barriers.

Response. The NRC is unaware of any requirement for "nuclear grade equipment" and notes that the expression does not appear in the

proposed rule or supporting guidance. The NRC agrees with the industry comment that commercially available materials suffice for the construction of the vehicle barrier if the barrier is capable of countering the design basis vehicle threat. As suggested by many respondents, the NRC recommends that affected licensees take advantage of available information on vehicle barrier testing, much of which has been conducted by Federal laboratories and agencies.

With respect to the use of "pre-approved barriers," the Commission believes that most vendors of commercial vehicle barrier systems know what the "stopping powers" of their barriers are. Licensees should use this as a resource in determining what barrier can counter the attributes of the Commission's design basis vehicle most cost effectively. In addition, the NRC has provided information on performance levels of several types of barriers to affected licensees. The Commission agrees with the NUMARC comment concerning expansion of the discussion on the flexibility of designing and installing barriers in the regulatory guide supporting the rule. The regulatory guide now reflects this.

Comment. NUMARC expressed the view that compensatory measures, not explicitly addressed in the proposed rule or regulatory guide, for maintenance or repair of barriers should be determined by the licensee. Another comment stated that compensatory measures required if a barrier is temporarily inoperable, as with maintenance, need to be addressed at an early stage.

Response. The NRC anticipates that vehicle barriers, particularly passive barriers, will infrequently become non-functional once installed. For those infrequent cases, any compensatory measures should take into consideration the type and cause of the problem and the time the barrier will be non-functional. For example, for short term problems with active or passive barriers, compensatory measures would not be expected to be extensive. In cases where barriers are non-functional for longer periods, compensatory measures may include placement of heavy vehicular equipment, concrete highway median barriers arranged in a serpentine fashion, installation of strands of airplane arresting wires, or the positioning of an officer armed with a high power contingency weapon may be appropriate. The regulatory guide issued in support of this rulemaking has been revised to include guidance regarding compensatory measures.

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D. Passive Vehicle Barriers

Comment. One comment was directed at the guidance that specified measures should be established to periodically verify the integrity of passive barriers outside the protected area. It was commented that passive barriers by their nature (ditches, berms, concrete filled embedded poles, etc.) do not require inspection, or if so, the period for inspecting should be on the order of several years. If licensees were to install a unique passive barrier that should need periodic inspection, it should be addressed on a case-by-case basis.

Response. The Commission agrees that the components of many passive barrier systems do not need to be inspected on a weekly or monthly basis due to the nature of their construction. Observations by routine security patrols should be sufficient to detect any degradation in the barrier. Some types of barriers may be more susceptible to deterioration, damage, or tampering and therefore should be subject to more frequent observation by security patrols or, in some cases, periodic inspection. Given the large variation in components of passive barriers, the Commission considers it appropriate to provide licensees with flexibility on how to assure the continued integrity of barrier components. If the barrier system is damaged, the Commission expects that such damage would be identified in a reasonable period and actions would be taken promptly to repair the damage.

E. Active Vehicle Barriers

Comment. Two comments were received requesting that the wording in the proposed regulatory guidance clarify that only one active barrier is needed to deny access. Also, one utility commented that the provision in the regulatory guide that specified vehicles and their operators be authorized for entry before being permitted access inside the vehicle barrier system would preclude their current practice of searching the vehicle after entry inside the active barrier.

Response. The NRC agrees with these comments and the guidance in the regulatory guide supporting the rule has been changed.

Comment. Another comment recommended that specific kinetic energy be identified for use in design of active barriers with documented performance satisfying specific energy requirements because this approach would help avoid costly independent testing to demonstrate performance.

Response. Guidance previously forwarded to licensees, designated as Safeguards Information, defines the

kinetic energy associated with the design basis vehicle. As previously stated, the NRC has provided information to affected licensees on performance levels of several types of barriers to help avoid costly independent testing.

F. Alternative Measures to Protect Against Explosives

Comment. One comment objected to the rule's provisions that would allow some licensees to provide only "substantial protection" and not equivalent protection to fully meet the Commission's design goals and criteria for protection against a vehicle bomb. One comment indicated that the NRC should not be considering costs in determining the acceptability of alternative measures because costs should not be considered relative to enforcing adequate protection. NUMARC commented that it was reasonable for licensees to have the option to propose alternative measures for Commission review when the design goals and criteria for protection against a vehicle bomb cannot be met without a significant resource burden.

Response. The NRC's regulatory analysis concluded that neither the Three Mile Island or World Trade Center events demonstrated a need to redefine adequate protection. The NRC's basis for the backfit being implemented by this rulemaking was a determination that it would result in a substantial increase in protection of the public health and safety. Paragraph 50.109(a)(3) of Title 10, Code of Federal Regulations, authorizes such a backfit only if the costs of implementation are justified in view of the increased protection. The NRC concluded that the estimated costs for all licensees to provide barriers to protect against vehicle intrusion were justified. However, at some sites, the location of barriers to protect against vehicle intrusion could provide substantial protection against a vehicle bomb without fully meeting the NRC's design goals and criteria for protection against an explosive device. For these licensees, the incremental costs for placing barriers further from vital areas or for providing additional protective measures to fully meet the design goal and criteria may not be justified by the incremental protection beyond the substantial level.

Comment. NUMARC objected to the provision that licensees proposing alternative measures must compare their costs with the costs of measures needed to fully meet the design goals and criteria for protection against a vehicle bomb and must provide an assessment

supporting a finding that the additional costs are not justified by the added protection that would be provided. NUMARC asserted that the NRC was requiring licensees to perform analyses beyond what the NRC staff has done in support of the proposed rule.

NUBARG similarly asserted that the NRC was requiring licensees to prove that alternative measures substantially increase safety, which is unfair. NUBARG asserts that this requires licensees to perform a backfit analysis on why they should not install a proposed modification (one that would fully meet the design goals and criteria) and that this runs counter to the backfit principle of the NRC providing the analysis.

Several respondents stated that they understood that the rule and regulatory guidance specified that those licensees proposing alternative measures would need to submit to the NRC a quantitative analysis to justify that the cost of plant specific measures are not justified by the added protection afforded. The comments indicated that, based on this understanding, such a task would be difficult, if not impossible.

A public interest group expressed the opinion that contingency planning as part of alternative measures is unacceptable when compared to a permanent vehicle control system.

Response. The optional licensee analysis provided for in the revised regulations is intended to be similar in approach to that performed by the NRC in the development of the regulatory analysis for the rulemaking. The Commission recognizes the difficulties with respect to quantification of the protection provided (see general discussion) and would expect licensees to provide a more deterministic analysis in comparing the relative protection provided by alternative measures taken by the licensee that don't fully meet the Commission design goal and criteria for protection against a vehicle bomb. The Commission did not intend to require its licensees to do more of an analysis or a different type of analysis than that performed by the NRC. The quantitative aspects of the analysis required by the regulation only apply to cost considerations, particularly the comparison of costs needed to fully meet the Commission's design goals and criteria for protection against a vehicle bomb with the cost of alternative measures.

The comment that contingency planning would be an unacceptable alternative to permanent vehicle barriers does not recognize the provision in the rule that specifies that all licensees are required to establish a vehicle barrier

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system to protect against use of a land vehicle as a means of transportation to gain unauthorized proximity to vital areas. Licensees may not substitute contingency plans for vehicle barriers. Rather, contingency plans were identified as one possible option for licensees (those few where it may be practical for them to propose alternative measures to protect against explosives) to supplement protection provided by the licensee's vehicle barrier system for protection against a vehicle bomb.

IV. NRC Inspection

Comment. One comment indicated that the NRC should establish procedures to assure licensee compliance with the rule.

Response. The NRC plans to inspect licensee implementation of the rule as part of the ongoing reactor inspection program. Most likely the inspection will be accomplished using a temporary inspection procedure, which is planned to be prepared after publication of the rule but before the required implementation date.

As previously stated, all affected licensees are required to amend their physical security plans in response to this rule. All commitments in physical security plans are fully inspectable and enforceable by the NRC.

V. Miscellaneous

A. Research Reactors

Comment. One comment recommended that, in light of the upcoming 1996 Olympics, all reactor fuel, heavy water, and kilocuries of Co and Cs be removed immediately from the Georgia Tech campus.

Response. While research reactors do not fall within the scope of this rulemaking, the Commission notes that its threat assessment activities are performed on a continuing basis, in close liaison with the intelligence community. Should the level of domestic threat change at any time, appropriate action will be taken by the NRC. Specifically, the Atlanta Field Office of the FBI has established liaison with all Federal agencies in Georgia, including the NRC, relative to the Olympics. The FBI is the lead law enforcement agency in charge of the Olympics and, to date, has not indicated that there is any threat to NRC-licensed facilities or materials relative to the Olympics.

B. Independent Spent Fuel Storage Installations

Comment. NUMARC commented that independent spent fuel storage installations (ISFSIs) should be clearly exempted from the rule.

Response. The NRC did not intend for ISFSIs to be subject to this regulation because of the lower consequences associated with storage of irradiated fuel removed from a power reactor core, particularly since spent fuel stored at ISFSIs must be aged for at least one year. The NRC is currently preparing a proposed rule to clarify physical protection requirements for ISFSIs. The lessons learned from the TMI intrusion will be considered in that rulemaking. In addition, the NRC is attempting to quantify the consequences of a vehicle bomb detonated in the vicinity of an ISFSI. The results of this study will assist in making a determination as to whether vehicle bomb protection is needed at ISFSIs. In the interim, the staff believes that the inherent nature of the fuel, along with the degree of protection provided by the approved storage means for spent fuel, provides adequate protection against a vehicle bomb.

C. Office of Management and Budget Supporting Statement

Comment. One comment identified that the NRC-estimated financial burden to licensees did not include capital costs for modifications.

Response. The NRC notes that the financial burden cited by the comment was derived from the Office of Management and Budget Supporting Statement, required under the Paperwork Reduction Act. This statement deals solely with the licensee recordkeeping and reporting burden resulting from the new rule, i.e., the paperwork burden. Actual construction costs are considered in the regulatory analysis that supports the rule.

Summary of Changes Made to Rule

The following changes have been made as a result of public comment analysis:

1. The design basis threat statement for radiological sabotage has been clarified to separate the threat of a land vehicle used for intrusion with that of a land vehicle used as a vehicle bomb.
2. ISFSIs have been specifically exempted from the rule.
3. Clarification of what is meant by "the Commission's design goals and criteria" has been added to the regulatory text.
4. The appropriate means for submitting alternative measures has been clarified under 10 CFR 73.55(c)(9)(i) by adding the phrase "in accordance with 10 CFR 50.90."
5. Summary and implementation schedules have been revised—from 90 to 180 days for summary submittals, and from 360 to 540 days (18 months) for

completion of implementation. Both time periods are from the effective date of the rule which is 1 month from the date of publication in the **Federal Register**.

Availability of Supporting Guidance

Two guidance documents are being developed by the NRC in support of this rule and are expected to be distributed to affected licensees before the effective date of the rule. These documents are: (1) Regulatory Guide 5.68, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants" and (2) NUREG/CR 6190, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants."

Regulatory Guide 5.68 will be available for inspection and copying for a fee at the Commission's Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC. Copies of issued guides may be purchased from the Government Printing Office at the current GPO price. Information on current GPO prices may be obtained by contacting the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-2171. Issued guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5825 Port Royal Road, Springfield, VA 22161.

Copies of NUREG/CR-6190 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies also will be available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy also will be available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Electronic Submittals

Required paperwork may be submitted, in addition to an original paper copy, in electronic format on a DOS-formatted (IBM compatible) 5.25 or 3.5 inch computer diskette. Text files should be provided in WordPerfect format or unformatted ASCII code. The format and version should be identified on the diskette's external label.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human

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environment and, therefore, an environmental impact statement is not required. The rule involves installation of vehicle barriers at operating power reactor sites and an evaluation of these barriers by the licensee to determine whether they provide acceptable protection against a land vehicle bomb under design goals and criteria established by the Commission.

Implementation of these amendments will not involve release of or exposure to radioactivity from the site. Construction activities associated with passive vehicle barriers will involve some earth movement, either for excavation or development of berms, and possible destruction of trees and shrubbery. Since most active vehicle barriers are hydraulically operated, there may on occasion be leakage of this fluid to the environment. The activities required to implement these amendments involve no significant environmental impact.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from: Carrie Brown, U.S. Nuclear Regulatory Commission, Washington, DC, telephone (301) 504-2382.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0002.

The public reporting burden for this collection of information is estimated to average 500 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0002), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Robert J. Dube, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2912.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. The rule affects only licensees authorized to operate a nuclear power reactor. The utilities that operate these nuclear power reactors do not fall within the scope of the definition "small entities" as given in the Regulatory Flexibility Act or the Small Business Size Standards promulgated in regulations issued by the Small Business Administration (13 CFR Part 121).

Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the final rule. The Commission has determined, based on this analysis, that backfitting to comply with the requirements of this final rule provides a substantial increase in protection to public health and safety or the common defense and security at a cost which is justified by the substantial increase. The backfit analysis on which this determination is based reads as follows.

I. Statement of the specific objectives that the proposed action is designated to achieve.

To publish a rule in response to direction from the Commission in a staff requirements memorandum dated June 29, 1993. The Commissioners' decision to proceed with expedited rulemaking was the result of two events. On February 7, 1993, there was a forced vehicle entry into the protected area (PA) at Three Mile Island (TMI) Unit 1. On February 25, 1993, a van bomb, containing between 500 and 1,500 pounds of TNT equivalent, was detonated at the World Trade Center in New York City.

In its subsequent review of the threat environment, the NRC staff concluded that there is no indication of an actual vehicle threat against the domestic

commercial nuclear industry. Nonetheless, in light of the vehicle intrusion at TMI and the World Trade Center vehicle bombing, the NRC staff concluded that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. The objective of the rulemaking is to enhance reactor safety by maintaining a prudent margin between what is the current threat estimate (low) and the design basis threat for radiological sabotage specified in 10 CFR 73.1(a) (higher).

II. General description of the activity that would be required by the licensee or applicant in order to complete the proposed action.

The rule requires each licensee authorized to operate a nuclear power plant to establish vehicle control measures to protect against the use of a design basis land vehicle as a means of transportation to gain unauthorized proximity to vital areas. This provides two benefits. First, it enhances a licensee's ability to interdict an adversary attempting to use a vehicle as an aid to reach critical safety equipment. Second, it provides protection against a land vehicle bomb.

The rule requires licensees to evaluate the effectiveness of their vehicle control measures with respect to the protection they provide against a land vehicle bomb. Licensees are required to confirm to the Commission that the vehicle control measures to protect against vehicle intrusion, alone or in combination with additional measures, fully meet the Commission's design goals and criteria for protection against a vehicle bomb. Licensees that can show that the additional costs for measures required to fully meet the Commission's design goals and criteria for protection against a vehicle bomb are not justified by the added protection that would be provided have the option to propose alternative measures to the Commission. These licensees will not be relieved of the requirement to protect the facility against vehicle intrusion.

Licensees that propose alternative measures are required to describe the level of protection that these measures would provide against a land vehicle bomb and compare the costs of the alternative measures with the costs of measures necessary to fully meet the criteria. The NRC will approve the alternative measures if the measures provide substantial protection against a land vehicle bomb and if the licensee demonstrates by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting measures needed to protect

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against a vehicle bomb are not justified by the added protection provided.

III. Potential change in the risk to the public from the accidental offsite release of radioactive material.

The potential change in the risk to the public from the accidental offsite release of radioactive material is discussed in detail in pages 4 through 7 and 10 through 14 of the regulatory analysis that supports the rulemaking. Failure to protect against attempted radiological sabotage could result in reactor core damage and large radiological releases. Based on its assessment, the NRC concludes that amending its regulations to protect against malevolent use of a vehicle against a nuclear power plant provides a substantial increase in overall protection of the public health and safety.

In summary, the TMI event demonstrated some aspects regarding use of a vehicle by a potential adversary that could present some challenges not previously considered by staff and licensees. The NRC considers that providing vehicle intrusion protection provides substantial enhancement against such a threat. Enhancements to protect against the vehicle intrusion threat also provide, to varying degrees dependent on site characteristics, enhancement for protection against vehicle bombs.

The World Trade Center event demonstrated a capability within the United States to construct a truck bomb undetected. This recently demonstrated capability indicates that although a vehicle bomb attack at a nuclear power plant is not reasonably to be expected, it is somewhat more likely to develop without advance indications than the NRC previously believed. Therefore, the NRC considers that providing permanently installed vehicle bomb protection provides substantial enhancement against such a threat.

IV. Potential impact on radiological exposure of facility employees and other onsite workers.

By enhancing protection against the malevolent use of a vehicle, the rule decreases the potential for radiological exposure of facility employees and other onsite workers. Although the threat of a determined, violent attack at a nuclear power plant is considered to be low, the rule also decreases the risk that onsite workers could be injured by weapons fire or an explosion.

V. Installation and continuing costs associated with the action, including the cost of facility downtime or the cost of construction delay.

Estimates of installation costs are discussed in detail on pages 7 through 10 and 14 of the regulatory analysis. Ranges in cost estimates for three vehicle types illustrate the strong

influence of vehicle characteristics. In addition, site-specific characteristics influence costs, including the need at some sites to extend the vehicle exclusion area beyond portions of the current PA boundary or providing a more substantial passive barrier.

The NRC staff estimates that about 80 to 90 percent of the sites will provide safe standoff distances against a vehicle bomb by providing a vehicle barrier in proximity to the present PA boundary. For these sites, cost estimates range from \$290K for protecting the smallest protected area against a passenger vehicle to \$2,955K for protecting the largest protected area against a large truck. (The characteristics of the design basis vehicle used to establish protection goals are described in a Safeguards Information document provided separately to affected licensees.) For the remaining 10 to 20 percent of the sites, cost estimates range from \$440K to \$3,655K.

An important consideration in assessing costs for the 10 to 20 percent of the sites that may have to protect beyond the existing protected areas is that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain proximity to vital areas and that they assess any incremental measures, if necessary, to meet the design goal for a land vehicle bomb. The NRC will accept alternative measures if the measures provide substantial protection against a land vehicle bomb and if the licensee demonstrates by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting measures needed to protect against a vehicle bomb are not justified by the added protection provided.

Continuing costs to maintain barriers should be small. Implementation of the rule will not require facility downtime or construction delay.

VI. The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements and NRC staff positions.

There should be no adverse safety impact from the rule. Construction of barriers will be near or beyond existing protected area perimeters and should not delay authorized access to the protected area.

VII. The estimated resource burden on the NRC associated with the action and the availability of such resources.

There should be no new resource burden on the NRC. There will be no NRC staff licensing review of licensees' vehicle control measures before implementation. Licensees will be required to retain their analyses on site

for NRC staff review during routine inspections. Inspection of the approximately 67 total sites for explosive protection will be about 1 FTE. Reviewing licensee proposals for alternative measures and 10 CFR 50.109 type analyses will require approximately 1 FTE and 40K of technical assistance from the United States Army Corps of Engineers.

VIII. The potential impact of differences in facility type, design, or age on the relevancy and practicality of the proposed action.

The action is relevant for all nuclear power reactors. The action should also be practical at most sites. If a barrier stopped a vehicle at the PA perimeter with little or no further penetration, about 90 percent of the sites would provide significant protection against the design basis vehicle bomb.

In those cases where licensees determine additional security measures may be needed to protect safe shutdown capability, the rule permits licensees to either implement the additional security measures or develop alternative protection strategies. The licensee may propose alternative measures if the measures provide substantial protection against a land vehicle bomb and if they demonstrate by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting measures needed to protect against a vehicle bomb are not justified by the added protection provided. The NRC staff will review licensee's alternative proposals and make an acceptability determination. The Commission will be notified of such NRC staff action.

NRC staff's analysis also indicates that there is a high likelihood that all sites will be capable of achieving and maintaining safe shutdown if a design basis bomb were detonated at any land accessible location of a nuclear power plant outside of the owner controlled area.

IX. Whether the proposed action is interim or final, and if interim, the justification for imposing the proposed action on an interim basis.

The action is to promulgate a final rule. The rulemaking does not involve interim actions.

List of Subjects in 10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 73.

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59 FR 48944
Published 9/23/94
Effective 10/24/94

*Certification of Gaseous Diffusion
Plants*

See Part 76 Statements of Consideration

59 FR 50688
Published 10/5/94
Effective 10/5/94

NRC Library; Address Change

See Part 35 Statements of Consideration

60 FR 13615
Published 3/14/95
Effective 4/13/95

*Reduction of Reporting Requirements
Imposed on NRC Licensees*

See Part 50 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

60 FR 46497
Published 9/7/95
Effective 10/10/95

10 CFR Part 73
RIN 3150-AF36

Changes to Nuclear Power Plant Security Requirements Associated With Containment Access Control

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to delete certain security requirements for controlling the access of personnel and materials into reactor containment during periods of high traffic such as refueling and major maintenance. This action relieves nuclear power plant licensees of the requirement to separately control access to reactor containments during these periods. Deletion of this requirement

decreases the regulatory burden for the licensees without degradation of physical security.

EFFECTIVE DATE: October 10, 1995.

FOR FURTHER INFORMATION CONTACT: Dr. Sandra Frattali, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6261, e-mail sdf@nrc.gov.

SUPPLEMENTARY INFORMATION:

Background

In 1991, the Commission re-examined the NRC's nuclear power plant security requirements associated with an internal threat contained in 10 CFR Part 73, "Physical Protection of Plants and Materials." In a report to the Commission dated August 4, 1992 (SECY-92-272), the NRC staff identified requirements that were redundant, out of date, or marginal to safety. Following public meetings held to discuss these requirements, the NRC staff submitted a subsequent report to the Commission dated December 12, 1993 (SECY-93-326), with recommended changes to § 73.55. One of the recommended changes was the deletion of § 73.55(d)(8), which contained a requirement for separate access control to reactor containments, which is unneeded, and a requirement for locks and alarms, which is contained elsewhere in 10 CFR Part 73. The Commission has decided to remove this paragraph to provide burden relief to licensees without compromising the physical protection of licensed activities against radiological sabotage. The other recommendations contained in SECY-93-326 will be addressed in another NRC rulemaking action.

Proposed Rule and Public Comments

On May 10, 1995 (60 FR 24803), the NRC published, with a public comment period of 30 days, a proposed rule that would delete § 73.55(d)(8). Twenty-two comments were received: 20 from utilities, 1 from an industry group, and 1 from a labor union. All commenters supported the proposed rule. The commenters agreed that the proposed action would reduce the regulatory burden but would not degrade the physical security of nuclear power plants. The industry group further commented that significant savings could result from this rulemaking. One of the utilities commented that it would enable utilities to make more efficient use of their resources.

One utility questioned whether the same relief would apply when access to containment is from an area provided with access controls and other security

features but not formally designated as a vital area. The same relief would not generically apply to these situations because the level of control varies for each area. However, the NRC will consider each situation on a case-by-case basis.

Another utility asked if its approved security plan, which already had requirements for access to containment directly from a protected area, was affected by this rulemaking. This rule affects access controls only from vital areas into containment. This rule does not affect access controls from protected areas into containment, thus, it does not affect any approved security plan for access to containment from a protected area. When access from a protected area into containment is necessary, existing access controls must remain in effect at the entrances to containment.

Final Rule

Based on the public comments, the NRC staff considers that no change to the final rule is necessary. Thus, the final rule remains the same as the proposed rule.

The final rule deletes paragraph (d)(8) of § 73.55. This amendment relieves licensees of an unnecessary burden, without degrading physical security. Moreover, since security personnel are no longer required to be assigned to a radiation control area, there will be a decrease in occupational exposure. NRC notes that this change applies only to access control from vital areas into reactor containment for the purpose of physical security and does not relieve a licensee of requirements established for the purpose of radiological control and emergency planning.

Environmental Impact: Categorical Exclusion

The Commission has determined that this rule is the type of action described as a categorical exclusion in 10 CFR 51.22 (c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0002.

Regulatory Analysis

Elimination of § 73.55(d)(8) relieves licensees of the requirement to station security personnel at entrances to containment during periods of high

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traffic. The potential savings to the licensees from the elimination of this requirement are substantial. Assuming, on the average, two security personnel are needed to control access to containment during the time the reactor is open, and assuming that the containment is open 50 days per major outage, with 2 major outages every 3 years, and a wage of approximately \$30 per hour (loaded) for security personnel, the total savings per reactor per year will be:

$$2 \text{ guards/reactor} \times 50 \text{ days/outage} \times \frac{2}{3} \text{ outages/year} \times \$30/\text{hr-guard} \times 24 \text{ hrs/day} = \$48,000/\text{year-reactor}.$$

With 110 operating nuclear power reactors, the total savings for the industry are potentially \$5,280,000/year. Moreover, deletion of § 73.55(d)(8) results in a decrease in occupational exposure because security personnel will no longer be required to be within the radiation controlled area directly adjacent to containment.

Reactor containment or adjacent areas that provide access to containment are already vital areas. Thus, access of personnel into containment is already controlled. In addition, having security personnel control access of materials into containment provides no substantial benefit since material access into the protected area is already controlled and the containment is located within the protected area. Furthermore, after reactor containment is secured following periods of heavy traffic, existing NRC requirements for walkdown inspections and security searches apply and assure the security of the containment. Hence, the requirement that access into the reactor containment itself be separately controlled provides little or no additional security.

In addition, because a reactor containment is a vital area, it is subject to the vital area requirements for locks and alarms contained in other sections of § 73.55, as well as all other policies and procedures related to vital areas and equipment. Thus, the requirement for locks and alarms in paragraph (d)(8) is redundant.

Based on the above discussion, the NRC concludes that eliminating § 73.55(d)(8) provides relief to the licensees and lowers occupational exposure without compromising physical protection of licensed activities against radiological sabotage at nuclear power reactors.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b),

the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule affects only licensees authorized to operate nuclear power reactors. These licensees do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act, or the size standards established by the NRC (10 CFR 2.810).

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because this amendment does not impose new requirements on existing 10 CFR Part 50 licensees. It is voluntary and should the licensee decide to implement this amendment, it is a reduction in burden to the licensee. Therefore, a backfit analysis has not been prepared for this amendment.

List of Subjects in 10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Export, Import, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 73.

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS--ENERGY

**PART
74**

MATERIAL CONTROL AND ACCOUNTING

OF SPECIAL NUCLEAR MATERIAL

STATEMENTS OF CONSIDERATION

52 FR 10033
Published 3/30/87
Effective 4/29/87

10 CFR Parts 70 and 74

**Material Control and Accounting
Requirements for Facilities Licensed
To Possess and Use Formula
Quantities of Strategic Special Nuclear
Material**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its material control and accounting (MC&A) requirements for facilities licensed to possess and use formula quantities of strategic special nuclear material (SSNM). These amendments will apply to all such fuel cycle facilities except irradiated fuel reprocessing plants, waste disposal operations, nuclear reactors, and users of nuclear materials in sealed sources. The amendments will significantly strengthen MC&A capabilities at the affected facilities by requiring more timely detection of anomalies potentially indicative of SSNM losses and by providing for more rapid and conclusive resolution of discrepancies. The amendments will be cost-effective by virtue of the fact that current requirements which are not cost-effective will be eliminated and existing process, production, and quality control information will be utilized to enhance material control and accounting capabilities.

EFFECTIVE DATE: April 29, 1987.

FOR FURTHER INFORMATION CONTACT:
Mr. C.W. Emeigh, Safeguards Material

Licensing and International Activities Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 Telephone: (301) 427-4769.

SUPPLEMENTARY INFORMATION:

Background

The amended MC&A requirements are being codified in 10 CFR Part 74 which has been established for documentation of all specific domestic MC&A regulatory requirements. Requirements for general licenses have been retained in Part 70.

Four high enriched uranium processing facilities will be subject to the amended requirements: Babcock and Wilcox, Lynchburg, Virginia; GA Technologies, San Diego, California; Nuclear Fuel Services, Erwin, Tennessee; and United Nuclear Corporation, Uncasville, Connecticut. Licensees processing special nuclear material of low strategic significance will continue to be subject to § 74.31, while licensees processing special nuclear material of moderate strategic significance and potential licensees processing strategic special nuclear material in irradiated fuel reprocessing plants will continue to be subject to the MC&A requirements contained in 10 CFR Part 70.

Current domestic MC&A regulations for strategic special nuclear material require bimonthly inventories. Comparison of an inventory difference (ID) with its associated limit of error (LEID) and with percent of throughput does not occur until nearly 30 days after the beginning of the physical inventory. Consequently, a thorough investigation of any identified anomaly might not occur, in the worst case, for 90 days after the contributing event occurred. The usefulness of these bimonthly inventories in providing assurance that significant quantities of SSNM have not been diverted has been limited by the difficulty encountered in conclusively resolving large inventory differences. This has necessitated reliance on material control data, plant security records, and intelligence information for the desired assurance. Recognizing this shortcoming, on August 20, 1981, the Commission approved publication of an Advance Notice of Proposed Rulemaking (ANPRM) to solicit public comment on how to revise MC&A regulations for SSNM that is capable of

being made into fission explosives. The ANPRM, which was published in the **Federal Register** on September 10, 1981 (46 FR 45144), included goals of the rulemaking and five options for achieving those goals. The primary goals were stated as: (1) Timely and localized detection of anomalies potentially indicative of a material loss, (2) rapid determination of whether an actual loss had occurred, and (3) availability of information to aid in the recovery of material in the event of an actual loss.

Two of the five options suggested in the ANPRM for achieving these goals retained an emphasis on periodic physical inventories. The other three options introduced requirements for the timely use of process monitoring information for safeguards purposes with de-emphasis of the importance and frequency of physical inventories. Responders to the ANPRM in some instances expressed reservations on the feasibility of using process monitoring information for safeguards purposes because of the lack of demonstrable evidence of successful application, but suggested no alternatives. Based on the comments received and on the results of continuing technical studies, a decision was made to proceed. The proposed rule that was presented to the Commission for publication included much of the substance of Options 3 and 4 of the ANPRM but was rewritten to: (1) Delete unnecessarily prescriptive requirements, (2) reduce the number of plans and programs required, (3) improve clarity, (4) incorporate capabilities to protect against certain types of inside adversary, and (5) provide flexibility for licensees to select the most cost-effective ways of achieving performance objectives. The rule gave credit for SSNM in secure containment and recognized differences with respect to safeguards vulnerability between processing SSNM in bulk form and in encapsulated form.

The proposed rule was published in the **Federal Register** on February 2, 1984 (49 FR 4091). Concurrent with the publication, copies of a Standard Format/Acceptance Criteria guide and a Regulatory Analysis were placed in the Public Document Room. Public comments were requested to be submitted by June 5, 1984. Citing technical complexity as the principal reason, the affected licensees requested an extension of the comment period. The comment period subsequently was

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extended to September 5, 1984 (June 19, 1984; 49 FR 25005).

Comments on the Proposed Rule

The Commission received four letters from licensees and a memorandum from the Department of State commenting on the proposed rule. Copies of the letters are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC 20555.

Changes in Response to Public Comments

1. Three respondents expressed concern over the technical feasibility of implementing an MC&A system in compliance with proposed rule requirements. One respondent pointed out that experimental projects designed to enhance near-real-time accounting failed to demonstrate the applicability of the technique in actual operating plants. A second respondent took issue with a statement in the Regulatory Analysis which indicated that the prompt accountability concept was technologically feasible and that significant benefits to MC&A systems could be achieved at moderate cost. The respondent cited results of a study performed at its site for the Commission as the basis for its skepticism. The third respondent expressed concern over the complex statistics that obviously would be involved in analyzing material control test data over space and time, as had been proposed.

The Commission has re-evaluated the in-process monitoring requirements in the proposed rule with respect to whether or not design goals could be achieved. Based on this re-evaluation the Commission concluded that the objective of upgraded material control and accounting systems could be achieved through less drastic modification of existing requirements. This change in direction has resulted in deletion of multiple time and area-wide loss detection tests from the rule and addition of requirements for quality control tests and trend analyses at the unit process level. Additionally, physical inventory requirements have been modified in the area of inventory difference evaluation criteria. The significance of an inventory difference will be initially tested against a threshold that takes into account measurement error only. If this threshold is exceeded, an investigation will be required which must include the computation of a second threshold that takes historical ID variation into account.

2. A comment was received to the effect that research and development operations by design do not achieve the steady state conditions required for application of in-process monitoring tests for loss detection. The respondent

proposed that such operations be exempted from in-process monitoring requirements and instead be subjected to either bimonthly inventories or periodic material balances coupled with item monitoring.

The Commission agrees with this assessment and has modified the rule for research and development operations to require material balances on a lot or batch basis, item monitoring, and analysis of material balance data for trends. An appropriate exemption has been added to § 74.53(a) in addition to the new requirements in paragraph (c) of the same section.

3. A respondent stated an opinion that samples should be exempt from in-process monitoring requirements on the basis that the SSNM quantities in samples are small and would require the acquisition of a large number by an adversary in order to obtain five formula kilograms. Sample control systems would rapidly detect such a removal. An additional relevant point was the fact that the total quantity of SSNM in a laboratory is typically small.

The Commission agrees with the respondent and exempted samples containing less than 0.05 formula kilograms of SSNM from in-process monitoring requirements and modified item monitoring requirements to allow for the treatment of such samples as items. Larger samples are expected to be within the scope of a material control test whether it be applied in the originating process unit or in the laboratory. In the former case, adequate administrative controls would be required to protect the integrity of the sample until it was returned to the originating process unit.

4. Two respondents expressed concern over the effect of data that is statistically non-normal on the establishment of alarm thresholds for loss detection. The respondent indicated that analyses of current process monitoring data pointed up the fact that, for some units, test data were non-normally distributed.

The Commission agrees that this is a concern, especially if the tails of a statistical distribution come into consideration. Unacceptably high false alarm rates will result when such conditions exist. To alleviate this concern, the required detection probability for losses from individual process units has been revised downward from 99 percent to 95 percent.

5. Comments were received from two licensees regarding the difficulties likely to be encountered in complying with the bias correction requirements reflected in the proposed rule. The principal difficulty lies in the fact that bias corrections are not sufficiently timely to permit record corrections to be made on the process floor. Retroactive corrections to the book records

necessitate the correction of label values on individual items if the accounting system is to balance.

The Commission agrees that bias corrections are difficult to accommodate in the accounting system. However, accounting for the impact of biases is an important consideration in achieving a reliable MC&A system. Consequently, requirements for bias corrections have been retained but modified to resolve some of the associated difficulties.

6. A respondent requested that consideration be given to permitting storage of untamper-sealed items in enclosures other than vaults. The respondent provided examples of situations in which untamper-sealed containers and unencapsulated solid fuel forms were stored in controlled access areas for varying time periods during the fabrication process. It was pointed out that in many instances it was impractical to tamper-seal certain material forms and that minimal handling was important to prevent damage.

The respondent's points are considered valid. Consequently, the final rule has been modified to permit storage of untamper-sealed containers in permanently controlled access areas. As indicated in the acceptance criteria, the area should be equipped with adequate controls to preclude undetected access to the SSNM by one individual in any position. The requirement to provide protection at least equivalent to tamper-safing dictates the level of control that is expected.

7. One respondent stated that the requirements of 10 CFR 70.57 and 70.58 should be changed to performance-oriented safeguards.

The Commission agrees with the respondent's statement and has taken action to accomplish this task. The quality assurance and accounting requirements in § 70.89 of the proposed rule (§ 74.59 of the final rule) have been replaced with portions of 10 CFR 70.57 and 70.58 that have been rewritten to be performance oriented, to delete obsolete requirements, and to clarify the quality assurance and accounting requirements applicable to Category I licensees.

Comments Not Incorporated

1. A respondent indicated that the 0.1 percent of active inventory limit on the standard error of the inventory difference estimator was not achievable for its particular process.

This comment appears to be the result of a misconception of what is being required. The proposed limit, while somewhat more restrictive than the current limit, should be achievable without extraordinary effort. Taking into account the differences in the method of computation, the current limit (i.e., 0.5% of additions to or removals from process expressed at the two standard deviation level) would equate to one standard

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deviation being less than 0.125 percent of active inventory. The decrease to 0.10 percent of active inventory is considered justified on the premise that there have been significant advances in state-of-the-art measurement technology since the current limit was imposed. A review of the level of performance of current licenses supports this conclusion.

2. A respondent expressed concern over the restrictions that might be imposed on the use of its workforce if detection within administratively controlled areas were to be required.

This comment became moot when area loss detection requirements were deleted from the rule.

3. A comment was received to the effect that the proposed 0.25 gm/liter limit on the concentration of SSNM in scrap contained in 30 gallon or larger containers would have a significant impact on a licensee's storage capability. Additionally, the respondent indicated that the proposed limit would have a significant impact on the amount of SSNM per container that they could receive from offsite for scrap recovery.

The exemption documented in § 70.83(a)(2) of the proposed rule (§ 74.53(a)(2) of the final rule) is not intended to be a limit on the amount of SSNM per container. Instead the 0.25 gm/liter criterion is considered a de minimis quantity below which application of the in-process monitoring requirements of paragraph (b) of the same section is not required.

4. The necessity for including fuel fabrication facilities in the scope of rule applicability was questioned by a respondent. The contention was put forth that, unlike conversion facilities, the problems the rule is intended to address are not present in fabrication facilities (i.e. unmeasured side streams and large inventory differences).

The Commission agrees that excessive inventory differences are less likely to occur in fuel fabrication facilities since there is minimal handling of SSNM in bulk form and the materials do not change chemical form. However, this does not preclude the possibility of a significant diversion. Consequently, the decision has been made to apply the rule to fuel fabrication as well as conversion facilities.

5. Affected licensees stated that, in their opinion, the conclusions reflected in the Regulatory Analysis were not representative of the actual cost impact likely to be experienced at their facilities.

In response, site-specific value/impact analyses were performed. Information obtained in preparing those analyses has been taken into account in the revised Regulatory Analysis prepared in support of the final rule.

6. A respondent expressed concern that drastic changes in regulatory requirements, such as those

incorporated in the proposed rule, were not receiving adequate review within the Commission prior to publication for comment. In particular, the respondent indicated that there should be more involvement of licensing and inspection personnel in the rulemaking process in view of their roles in ultimately approving licensees' plans and inspecting their application.

The Commission does not agree with the respondent's position. Rulemaking procedures include scheduled milestones for review and comment by licensing, inspection, and other interested regulatory personnel during the formulation of new rules. Rules are particularly reviewed for inspectability prior to issuance.

Other Changes

1. Requirements of the proposed rule in §§ 70.81 through 70.89 have been redesignated §§ 74.51 through 74.59 in the final rule. This change was made to be consistent with the Commission's objective of eventually incorporating all domestic MC&A regulatory requirements in Part 74. With this action, the MC&A requirements in §§ 70.51, 70.57, and 70.58 apply only to licensees possessing and using special nuclear material of moderate strategic significance, strategic special nuclear material in irradiated fuel reprocessing plants, and special categories of licensees possessing SNM of low strategic significance who are not currently required to have an approved MC&A plan. Performance-oriented regulations subsequently are expected to be developed for those categories of licensees and incorporated in Part 74.

2. The list of definitions in § 74.4 has been expanded to include appropriate definitions from Part 70 and new definitions applicable to the subject rule. Additional definitions may be added when the rules for other categories of licensees, referenced above, are transferred to Part 74. With respect to terminology, Part 74 reflects the terms the Commission now prefers when referring to certain MC&A and statistical concepts. However, the language in Part 70 has not been changed.

3. Irradiated fuel reprocessing plants have been deleted from the applicability statement in the final rule. This action was taken because of unresolved questions as to whether a reprocessing plant could comply with all rule requirements and the negative outlook for domestic reprocessing in the near term. It is expected that by the time reprocessing becomes a viable option in the United States, there will be significant technological advances that will influence material control and accounting system design for such plants.

4. A statement has been added to § 74.51 to clarify the fact that licensees

are required to follow currently approved fundamental nuclear material control plans until newly submitted plans are reviewed and approved.

5. Section 74.51(c) has been modified to provide flexibility in the timing of the implementation of the new rule by licensees. Depending upon current MC&A practices, the complexity of production operations, and advance planning by the licensees, the time within which adequate performance against rule requirements is achieved will vary from licensee to licensee. In some cases, current practices approach what would be expected under an upgraded MC&A system. Under these conditions, a licensee may be able to achieve adequate performance in less than six months. At the other extreme, the current system may bear no resemblance to an upgraded system; hence, longer than six months may be required for full implementation of the rule.

6. The deletion of irradiated fuel reprocessing plants from the scope of the rule made the exemption for SSNM exhibiting external radiation in excess of 100 rem per hour at three feet irrelevant. Therefore, this proposed exemption has been deleted. Any Category I licensee who may have occasion to handle irradiated fuel may request an exemption from the in-process monitoring requirements of § 74.53(b).

7. For SSNM having an estimated measurement uncertainty greater than five percent that is either input to or output from a unit operation that processes less than five formula kilograms in three months, a new exemption has been added to § 74.53(a). This exemption is considered appropriate on the basis of the low throughput of the unit, the unattractive nature of the material, and the high uncertainty that would be associated with any material control test results.

8. A requirement has been added to § 74.55 to detect a five formula kilogram loss within two months for items stored in a permanently controlled access area located outside of a material access area (MAA). This requirement was inadvertently omitted from the proposed rule. This oversight has been discussed with affected licensees who concurred with the need for the requirement.

9. In lieu of modifying § 74.13(b)(2) to add a technical reference to § 74.59, a requirement has been included in § 74.59(f)(1)(i) to investigate and report when the estimate of the standard error of the inventory difference exceeds 0.1 percent or more of active inventory. The requirement is essentially the same as that currently in § 74.13(b)(2) but reworded to be consistent with the terminology in the Category I Rule. It does not represent a duplication since the requirement in § 74.59(f)(1)(i)

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supersedes § 74.13(b)(2) in its entirety for Category I licensees.

10. Miscellaneous minor changes have been made that have no impact on the substance of the rule.

International Considerations

It should be noted that the performance goals for the rule, stated previously, are domestic goals and are considered to be appropriate for a subnational threat. For all U.S. licensees, the detection and response capability of the rule have been determined to be sufficient to adequately protect the public health and safety from a subnational threat. On the other hand, the International Atomic Energy Agency (IAEA), which is responsible for applying international safeguards in non-nuclear weapons states, must judge whether a significant diversion has occurred in the face of a possible national conspiracy. In order to reach its conclusion with the required level of certainty, the IAEA may find it necessary to continue to place primary reliance on periodic physical inventories as opposed to an analysis of process monitoring data, as promulgated in this rule.

Environmental Impact—Categorical Exclusion

The material control and accounting (MC&A) requirements for licensees licensed to possess and use five or more formula kilograms of strategic special nuclear material will be amended in two major ways:

The first major amendment will move certain safeguards related recordkeeping and reporting requirements now found in Part 70 to Part 74 to be consistent with the Commission's objective for separating safety requirements from safeguards requirements.

Pursuant to 10 CFR 51.22(c)(3) (ii) and (iii), a categorical exclusion is granted in amendments to Commission regulations that relate to recordkeeping and reporting requirements. Moving the MC&A requirements from Part 70 to Part 74 meets the eligibility criteria for this categorical exclusion. Accordingly, no environmental impact statement or environmental assessments needs to be prepared in conjunction with the issuance of these amendments.

Finding of No Significant Environmental Impact: Availability

The second major amendment will modify material control and accounting requirements for licensees who possess and use formula quantities of strategic special nuclear material to achieve the following objectives:

- Prompt investigation of anomalies potentially indicative of SSNM losses,
- Timely detection of the possible

abrupt loss of five or more formula kilograms of SSNM from individual unit processes,

- Rapid determination of whether an actual loss of five or more formula kilograms occurred,
- Ongoing confirmation of the presence of SSNM in assigned locations, and
- Timely generation of information to aid in the recovery of SSNM in the event of an actual loss.

The principal differences between the MC&A requirements in this rule and those in the current rules are the use of process monitoring data for material control, a longer interval between physical inventories, and an item monitoring program designed to detect a five formula kilogram loss.

For the following reasons, the Commission has determined not to prepare an environmental impact statement for the second major amendment and, in accordance with 10 CFR 51.32 and 51.34, finds that the proposed amendments have no significant impact on the environment.

1. The rule will not result in changes in the licenses' processes or manufacturing procedures and therefore will not affect or alter any release of effluents to the environment.

2. The rule will affect four high enriched uranium fuel processing facilities, all of whom have undergone individual NEPA review.

The environmental assessment upon which the foregoing determination is based is included in the Regulatory Analysis for this rulemaking action and is available for public inspection at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Dr. W.B. Brown, Chief, Safeguards Material Licensing and International Activities Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4185.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to be Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval numbers 3150-0009 (for Part 70) and 3150-0123 (for Part 74).

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection or copying for a fee in the NRC Public Document Room, 1717 H Street, NW., Washington, DC. Single copies of the analysis may be

obtained from Mr. C.W. Emeigh, Safeguards Material Licensing and International Activities Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 427-4769.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This rule affects four facilities that process high enriched uranium and is expected to result in positive cost/benefit to the industry and, in addition, to provide enhanced safeguards capabilities. The facilities include: Babcock and Wilcox Company, Lynchburg, Virginia; GA Technologies, San Diego, California; Nuclear Fuel Services, Erwin, Tennessee; and United Nuclear Corporation, Uncasville, Connecticut. These companies are dominant in their service areas and do not fall within the definition of "small entities" set forth in the Regulatory Flexibility Act or by the Small Business Administration in 13 CFR Part 121.

Backfit Analysis

The staff has determined that a backfit analysis is not required for this rule since these amendments do not apply to 10 CFR Part 50 licensees.

List of Subjects

10 CFR Part 70

Hazardous materials-transportation, Material control and accounting, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 74

Accounting, Material control and accounting, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Special nuclear material.

Under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Parts 70 and 74.

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52 FR 19303
Published 5/22/87
Effective 6/22/87

10 CFR Parts 70 and 74

Reporting of Special Nuclear Material Physical Inventory Summary Results

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations on special nuclear material control and accounting to require the reporting of the summary results of physical inventories of special nuclear material. The affected licensees have been providing this information on a voluntary basis since 1975. These amendments will establish a regulatory basis for the reporting of special nuclear material physical inventory data by licensees so that greater assurance can be provided that timely, reliable information will be made available to the public and the NRC licensing and inspection programs. Incorporating the special nuclear material physical inventory reporting into the NRC regulations is the most cost-effective way to obtain the necessary information.

EFFECTIVE DATE: June 22, 1987.

FOR FURTHER INFORMATION CONTACT: Darrell A. Huff, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4770.

SUPPLEMENTARY INFORMATION:

Background

In 1975, the Office of Inspection and Enforcement (IE) instituted a voluntary reporting system known as the Safeguards Status Report System (SSRS) whereby licensees were requested to report to the NRC physical inventory results in a prescribed format. Currently, 12 licensees make a voluntary commitment as part of their operating plan to report physical inventory results to the appropriate NRC regional office. The information provided by these voluntary reports is used by the NRC to monitor and assess the material control and accounting performance of licensees and as input for NUREG-0430, "Licensed Fuel Facility Status Report/Inventory Difference Data," which was initiated by the Director of IE in 1977 in response to congressional and public concerns. NUREG-0430 reports licensed fuel facilities' physical inventory difference data following agency review of the information and completion of any related investigations.

Recognizing the need for the reporting of physical inventory results, IE requested an explicit regulatory basis

for this physical inventory reporting system. On August 23, 1976 (41 FR 35537), the NRC published in the Federal Register proposed amendments to 10 CFR Part 70 that would have required the reporting of the results of each ending physical inventory and the associated material accounting and measurement error data. The proposed amendments were published for a 60-day public comment period, and seven letters were received on the proposed rule. Final action on the reporting requirements was postponed, pending initiation of a separate but related rulemaking effort (the MC&A reform amendments). The delay in implementing the MC&A reform amendments caused IE to request, in a memo dated June 2, 1982, that the Office of Nuclear Regulatory Research (RES) publish an amendment to 10 CFR Part 70 requiring reporting of physical inventories of SNM. However, due to the unavailability of resources within RES, completion of this rulemaking was referred back to IE by the EDO in a memo dated May 21, 1986.

Because of the time lapse since the reporting requirements were published as a proposed rule, the NRC republished the requirements in proposed form on October 23, 1986 (51 FR 37578). The proposed amendments reflected comments and suggestions received when the amendments were first proposed in 1976 as well as comments and suggestions that were solicited from the NRC regional offices in 1983 and 1984. Public comments on the proposed rule were requested to be submitted by November 24, 1986.

In 1983, a decision was made to create a new Part 74 which would pertain solely to MC&A safeguards requirements. When 10 CFR Part 74 was published on February 28, 1985 (50 FR 7575), it contained the MC&A regulatory requirements for licensees authorized to possess and use more than one effective kilogram of special nuclear material of low strategic significance. Certain safeguards-related recordkeeping and reporting requirements, formerly found in Part 70, were also moved to Part 74 in order to separate them from safety reporting requirements. Therefore, the reporting requirement for SNM physical inventory results is also being included in Part 74.

Comments on the Proposed Rule

The Commission received one letter from a licensee and one from a citizens group commenting on the proposed rule. Copies of these letters are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC 20555.

The licensee's response stated the opinion that, since a voluntary reporting

approach has been satisfactory for the past 10 years, a regulation is not needed. Although the voluntary system succeeded in collecting physical inventory data, the timeliness and consistency of this data was often inadequate. Confusion has also existed over the intended form and content of this information. Promulgation of this rule will provide greater assurance of data timeliness and consistency and eliminate the form and content problems by standardizing the reporting of physical inventory information on NRC Form 327. Hence, the Commission continues to believe that a rule requiring this reporting is in the best interest of the public.

The comments received from the citizens group were merely supportive of the need for the rule and requested no changes. Therefore, no specific response is necessary; however, such comments are always appreciated and welcomed by the Commission.

In summary, no changes have been made to the rule, as proposed, as a result of the public comments received. However, due to the recent approval of a new material control and accounting rule for fuel facilities licensed to possess and use formula quantities of strategic special nuclear material, a paragraph has been added to 10 CFR 74.17 that references the appropriate sections of this new rule.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0139.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection or copying for a fee in the NRC Public Document Room, 1717 H Street, NW, Washington, DC. Single copies of the analysis may be obtained from Darrell A. Huff, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4770.

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Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. Currently, 12 licensees, who are composed of low enriched uranium and high enriched uranium fuel manufacturing facilities, will be affected by these amendments. This rule codifies a reporting procedure that has been a licensee practice since 1975.

Accordingly, there is no new, significant economic impact on these licensees, nor are the licensees within the definition of small businesses set forth in section 3 of the Small Business Act, 15 U.S.C. 632, or within the Small Business Size Standards set forth in 13 CFR Part 121.

Backfit Analysis

The staff has determined that a backfit analysis is not required for this rule since these amendments do not apply to 10 CFR Part 50 licensees.

List of Subjects

10 CFR Part 70

Hazardous materials-transportation. Material Control and Accounting. Nuclear materials. Packaging and containers. Penalty. Radiation protection. Reporting and recordkeeping requirements. Scientific equipment. Security measures. Special nuclear material.

10 CFR Part 74

Accounting. Material control and accounting. Nuclear materials. Penalty. Reporting and recordkeeping requirements. Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Parts 70 and 74.

52 FR 21651

Published 6/9/87
Effective 10/8/87

Changes to Safeguards Reporting Requirements

See Part 70 Statements of Consideration

52 FR 31601

Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

53 FR 4109

Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI and GPA

See Part 30 Statements of Consideration

53 FR 19240

Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 43419

Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

54 FR 6876

Published 2/15/89
Effective 2/15/89

10 CFR Parts 70 and 74

Centralization of Material Control and Accounting Licensing and Inspection Activities for Non-Reactor Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect a management action to centralize material control and accounting (MC&A) licensing and inspection activities in NRC Headquarters, Rockville, Maryland, for non-reactor facilities. Effective February 15, 1989 for affected facilities located in Regions I, III, and V, MC&A licensing reviews required by 10 CFR 70.32(c) and inspections will be performed by the Domestic Safeguards and Regional Oversight Branch, Division of Safeguards and Transportation, Office of Nuclear Material Safety and Safeguards. The performance of these activities for facilities located in Region II will remain in Region II until further notice by the Commission. This action is necessary because the small number of affected facilities in each region cannot support the full spectrum of knowledge, skills, and disciplines needed to conduct MC&A inspections.

EFFECTIVE DATE: February 15, 1989.

FOR FURTHER INFORMATION CONTACT: Dr. Stanley L. Dolins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 Telephone (301) 492-3745 or Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 Telephone (301) 492-0478.

SUPPLEMENTARY INFORMATION:

Background

On December 22, 1988, the Executive Director for Operations approved, with the concurrence of the Chairman, a phased centralization in NRC Headquarters, Rockville, Maryland, of

MC&A activities for non-reactor facilities. Affected are those non-reactor facilities required to maintain an MC&A program. Nationwide, there are, at the present time, sixteen non-reactor facilities required to maintain MC&A programs and which are subject to MC&A inspections (10 fuel cycle and 6 others). Transfer of these licensing and inspection activities from Regions I, III, and V to the Domestic Safeguards and Regional Oversight Branch, Division of Safeguards and Transportation, Office of Nuclear Material Safety and Safeguards is effective February 15, 1989 while the Region II MC&A inspection program and 10 CFR 70.32(c) licensing reviews will be phased into Headquarters through Region II staff attrition or over a two-year period, whichever occurs first. Region IV has not affected facilities.

This centralization for these functions is needed because the relatively small annual workload requirements for the NRC in the majority of Regions foreclose the possibility of maintaining within each Region a full spectrum of the knowledge, skills, and disciplines needed to perform MC&A inspections. Centralization in NRC Headquarters will assure the maintenance of a viable and adequate nationwide MC&A inspection program for non-reactor facilities.

These revisions, necessitated by the centralization, are administrative in nature. They change the NRC recipient office point of contact for licensee reports, and conform the regulation to track the responsibilities now assigned to the Director, Office of Nuclear Material Safety and Safeguards.

Because these are amendments dealing with minor matters of agency management and personnel, the notice and comment provisions of the Administrative Procedure Act do not apply pursuant to 5 U.S.C. 553(b)(A). These amendments are effective upon publication in the Federal Register. Good cause exists to dispense with the usual 30-day delay in the effective date because the amendments are of a minor and administrative nature dealing with the centralization to Headquarters of licensing and inspection activities formerly conducted in the NRC Regional Offices.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

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Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget approval numbers 3150-0009 and 3150-0123.

Backfit Analysis

The backfit rule, 10 CFR 50.109, does not apply to the facilities subject to this final rulemaking. Therefore, no backfit analysis has been prepared.

List of Subjects

10 CFR Part 70

Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 74

Accounting, Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 70 and 74.

55 FR 5978

Published 2/21/90.

Effective 2/21/90

10 CFR Parts 70 and 74

RIN 3150-AD47

Centralization of Material Control and Accounting Licensing and Inspection Activities for Nonreactor Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to reflect a management action to centralize material control and accounting (MC&A) licensing and inspection activities in NRC Headquarters, Rockville, Maryland, for nonreactor facilities. Effective February 21, 1990, for affected facilities located in Region II, MC&A licensing reviews required by 10 CFR 70.32(c) and inspections will be performed by the Domestic Safeguards and Regional Oversight Branch, Division of Safeguards and Transportation, Office

of Nuclear Material Safety and Safeguards. This action is necessary because the small number of affected facilities in Region II cannot support within Region II the full spectrum of knowledge, skills, and disciplines needed to conduct MC&A inspections. (The centralization of these functions for Regions I, III, and V became effective on February 15, 1989. Region IV has no affected facilities.)

EFFECTIVE DATE: February 21, 1990.

FOR FURTHER INFORMATION CONTACT:

Dr. Stanley L. Dolins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3745 or Ms. Rocio Castaneira, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-0392.

SUPPLEMENTARY INFORMATION:

Background

On December 22, 1988, the Executive Director for Operations approved, with the concurrence of the Chairman, a phased centralization in NRC Headquarters, Rockville, Maryland, of MC&A activities for nonreactor facilities. Affected are those nonreactor facilities required to maintain an MC&A program. Nationwide, there are, at the present time, 16 nonreactor facilities required to maintain MC&A programs and subject to MC&A inspections. Transfer of these licensing and inspection functions from Regions I, III, and V to the Domestic Safeguards and Regional Oversight Branch, Division of Safeguards and Transportation, Office of Nuclear Material Safety and Safeguards was effective on February 15, 1989. To complete the phased centralization, transfer of these licensing and inspection functions from Region II was to take place through attrition or over a period of 2 years, whichever came first. Region IV has no affected facilities. Subsequently, Region II has requested that we proceed with the final phase of this centralization and transfer the MC&A functions currently in Region II to headquarters earlier on instead of waiting for the 2-year period to expire. The Office of Nuclear Material Safety and Safeguards has agreed to the transfer and established February 21, 1990, as the effective date. The centralization for these functions is needed because the relatively small annual workload requirements for the NRC in Region II cannot continue to support within Region II a full spectrum of the knowledge, skills, and disciplines needed to perform MC&A inspections. Completion of the final phase of this centralization in NRC headquarters will ensure the continued maintenance of a viable and adequate nationwide MC&A inspection program for nonreactor facilities.

These revisions, necessitated by the completion of this phased centralization, are administrative in nature. They change the NRC recipient office point of contact for licensee reports from Region II to NRC headquarters and conform the regulation to track the responsibilities now assigned to the Director, Office of Nuclear Material Safety and Safeguards.

Because these are amendments dealing with a minor matter of agency management and personnel, the notice and comment provisions of the Administrative Procedure Act do not apply pursuant to 5 U.S.C. 553(b)(A). These amendments are effective upon publication in the *Federal Register*. Good cause exists to dispense with the usual 30-day delay in the effective date because the amendments are of a minor administrative nature dealing with the completion of the phased centralization to headquarters of licensing and inspection activities formerly conducted in the NRC Region II office.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget with approval numbers 3150-0009 and 3150-0123.

Backfit Analysis

This backfit rule, 10 CFR 50.109, does not apply to the facilities subject to this final rulemaking. Therefore, no backfit analysis has been prepared.

List of Subjects

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 74

Accounting, Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

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For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 70 and 74.

56 FR 55991
Published 10/31/91
Effective 12/2/91

10 CFR Parts 2, 40, 70, and 74

RIN 3150-AD56

Material Control and Accounting Requirements for Uranium Enrichment Facilities Producing Special Nuclear Material of Low Strategic Significance

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (Commission) is amending its regulations to include performance-based material control and accounting requirements that will apply to uranium enrichment facility licensees who produce significant quantities of special nuclear material (SNM) of low strategic significance. The requirements in this amendment are similar to existing requirements that apply to licensees authorized to possess and use more than one effective kilogram of special nuclear material (SNM) of low strategic significance. The final rule imposes requirements to ensure that enrichment facilities produce only enriched uranium of low strategic significance as authorized and will apply to all applicants who build or operate enrichment facilities.

EFFECTIVE DATE: December 2, 1991.

FOR FURTHER INFORMATION CONTACT: Mr. Gordon E. Gundersen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3803 or Mr. Donald R. Joy, Office of Nuclear Material Safety and Safeguards, U.S. Regulatory Commission, Washington, DC 20555, telephone (301) 492-0352.

SUPPLEMENTARY INFORMATION:

Background

The Commission published the proposed rule on this subject in the **Federal Register** on December 17, 1990 (55 FR 51726). The rule proposed to amend 10 CFR part 74 to provide material control and accounting (MC&A) requirements for uranium enrichment facilities producing enriched uranium for use in light water reactor nuclear power facilities. Conforming amendments were also proposed for 10 CFR parts 2, 40, and 70. A draft regulatory guide, DG-5002, "Material Control and Accounting for Uranium Enrichment Facilities Authorized to Produce Special Nuclear Material of Low Strategic Significance" to accompany the proposed rule, was made available during the comment period.

In the United States, current uranium enrichment operations are carried out exclusively by the Department of Energy (DOE). These operations have been and continue to be exempt by law from regulation by the NRC. Although licensed commercial enrichment is permitted by law, there has not been commercial interest in enrichment until recently. Hence the NRC currently has no regulations explicitly designed to regulate licensed enrichment.

The need for enrichment regulations is now emerging. On January 31, 1991, Louisiana Energy Services applied for a license to construct and operate an enrichment plant using gas centrifuge technology. In a separate action, DOE is proposing the construction and operation of an enrichment plant utilizing the atomic vapor laser isotope separation (AVLIS) process. Congress may require such a facility to be licensed by the NRC, although no requirements for NRC licensing exist at present. Both plants would be designed to produce low enriched uranium from natural uranium, where the term "natural uranium" refers to uranium that has not been artificially enriched in the U²³⁵ isotope.

Enactment of the Solar, Wind, Waste and Geothermal Power Production Incentives Act of 1990 (Pub. L. 101-575) provides that the licensing of uranium enrichment plants will be through a single license issued pursuant to 10 CFR parts 40 and 70, rather than a two-part license under 10 CFR part 50. The Commission is proceeding, as a separate matter, to conform its regulations to the requirements of this Act and thereby define the regulatory framework for licensing enrichment plants.

At the present time the NRC cannot rule out the possibility that enrichment equipment could be deliberately misused to produce unauthorized enriched uranium. The unauthorized enriched uranium could be either an undeclared excess of enriched uranium at the licensed enrichment level or uranium enriched to a level higher than that authorized. Production of unauthorized enriched uranium would be inimical to the common defense and security of the United States and is prohibited by the Atomic Energy Act of 1954, as amended.

Safeguards are needed for such facilities to protect against such unauthorized activities. This final rule would address the need for such safeguards primarily through creation of a new § 74.33 in NRC's existing material control and accounting regulations. This

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section contains general performance objectives and system requirements and capabilities which licensees would be required to address through development and implementation of a fundamental nuclear material control (FNMC) plan.

Public Comments and NRC Responses

The Commission received six comment letters from different sources in response to the proposed rulemaking. Two comments from potential licensees, one from an engineering and construction firm, one from a Federal agency, and two from individuals. The Environmental Protection Agency stated that the proposed rule had been reviewed, but did not suggest modifications or specifically indicate support for or opposition to the proposed rule. Four commenters did not specifically indicate support or opposition to the proposed rule, but did suggest modifications. One commenter supported the rule with modifications.

General categories of comments from public comment letters and the Commission's responses are presented below. One commenter also addressed items in the draft regulatory guide. Those comments will not be discussed here, but they were considered during the preparation of the final regulatory guide.

Comments on Scope of Rule

One commenter stated that the proposed regulations was vague and subject to multiple interpretation. One commenter stated that § 74.31(a) should be modified to exclude any facilities that are subject to § 74.33 from the MC&A requirements of § 74.31. One commenter urged that only the agreed upon antiproliferation measures be imposed on U.S. licensees. The Commission concludes that the commenter meant those measures agreed upon by the United States and the International Atomic Energy Agency (IAEA). Apparently the commenter believes that NRC efforts might be thwarted by lax enforcement of antiproliferation measures in other countries. One commenter wanted the rule modified to acknowledge that physical security measures may be used to achieve the MC&A objectives of § 74.33. One commenter wanted to allow the production of enriched uranium up to the quantities specified for each enrichment level in the definition of low strategic significance because in the commenter's view, the safeguards significance is the same for all enrichment levels of SNM of low strategic significance. One commenter who also wanted to change the

proposed rule to permit production of low strategic significance material, argued that it is the illegal use and distribution of such material, not its production, that should be prevented.

One commenter argued that security measures at uranium enrichment facilities should be more stringent than that required at other types of facilities using uranium of this enrichment level because of the need to deter and detect high enriched uranium (HEU) production.

Response. The Commission disagrees with the first comment that the rule is unacceptably vague. Performance-based rules like the proposed rule are intentionally written to allow flexibility for how the applicants and licensees develop a program specific to their facility which meets the general performance objectives and stated system features and capabilities. Thus, the proposed rule by necessity was written in general rather than prescriptive terms. Prescriptive detail on acceptable ways to meet the objectives is provided in the accompanying regulatory guide.

The Commission agrees with the second comment, and § 74.31(a) has been revised to exclude specifically production facilities, licensed pursuant to part 70 of this chapter, from the requirements of § 74.31.

With regard to imposing requirements other than those agreed upon by the U.S. and the IAEA, the IAEA does not issue licenses, and this rule must reflect what the NRC considers acceptable and appropriate for licensing commercial uranium enrichment in the United States. However, the proposed rule was written with full consideration of IAEA agreements and licensees selected by the IAEA for their inspection may be subject to additional IAEA requirements under 10 CFR part 75.

While the Commission agrees with the thrust of the comment regarding physical security measures, it disagrees that specific acknowledgement of the use of such measures in achieving MC&A objectives is necessary. Physical security measures are a natural complement to MC&A programs. Under this rule, an applicant will be free to develop its MC&A program in any manner as long as it meets the general performance objectives and has the system features and capabilities specified. Physical security measures can be included if desired. Using locks or guards to prevent access to enrichment equipment is an example of a physical security measure which could be used to achieve, in part, the performance objectives relating to

unauthorized production of enriched uranium.

With regard to the level of enrichment allowed, the commenter who argued that the safeguards significance of all levels of enrichment of uranium of low strategic significance is the same appears to have a good point. However, at an enrichment facility, the presence of even a small quantity of HEU has a greater safeguards significance because of the nature of the facility, and therefore requires more restrictive regulation. The Commission's view is that the present MC&A requirements are appropriate for uranium enrichment facilities producing less than 10 percent U²³⁵ enriched uranium. More stringent requirements would be needed for enrichment facilities producing uranium of higher enrichments. Moreover, it is consistent with both the Atomic Energy Act and the Commission's longstanding defense-in-depth policy that both unauthorized use and production of HEU should be prevented.

One of the main purposes of this rule is to prevent and detect with high assurance, the production of HEU. Therefore, the suggestion that physical security measures be imposed that are greater than those required by § 73.67(f) for other types of facilities using uranium of low strategic significance was not taken because such measures are not needed.

Specific Comments

(1) *Comment on 10 CFR 40.1.* Two commenters suggested changing the reference from § 70.22 to § 74.33 in 10 CFR 40.1 to clarify where individuals can find additional criteria for the issuances of a license.

Response. The Commission considered this recommendation. However, because § 70.22 contains all the requirements for a license application e.g., environmental impact statement, emergency plan, physical security plan, etc., whereas § 74.33 contains only the MC&A part of the regulatory program required for an uranium enrichment facility, the reference is not being changed.

(2) *Contents of Applications.* Two commenters wanted changes to § 70.22(b) to exclude persons possessing enrichment equipment from being required to have a license, arguing consistency with the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 (Pub. L. 101-575).

Response. The Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 specifically requires the licensing of any equipment,

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or device, or important component part especially designed for such equipment or device, capable of separating the isotopes of uranium by defining such as an enrichment facility. Hence to adopt the comment would be in conflict with the Act.

(3) *Condition of License.* One commenter argued that the proposed change to § 70.32(c)(1) would require any licensee having a specified quantity of source material to have a part 70 or 74 MC&A program. The commenter suggested that part 40 could be more appropriately amended to directly reference MC&A requirements for natural and depleted uranium at enrichment facilities to avoid this situation.

Response. It was not the Commission's intent that source material at other than an enrichment facility be subject to the MC&A requirements of part 70 or 74. Accordingly, § 70.32(c)(1) has been revised by adding the words "at an uranium enrichment facility" after the words "source material." However, for reasons stated previously (see response to comment 1) the Commission believes that part 70 and not part 40 is the proper place to provide the MC&A reference.

(4) *Definitions.* For clarity, one commenter wanted to modify the definition of *active inventory* and add new definitions for the terms *dynamic inventory* and *items*.

Response. The recommendations to modify the definition of *active inventory* and add a definition for *dynamic inventory* were not adopted. In the Commission's opinion, the suggested modification of the definition of *active inventory* would add an inappropriate level of detail to the existing definition. A definition of *dynamic inventory* is not necessary because the meaning of the term is clear in the context of its use. The commenter's suggested definition of *item* has been added to § 74.4.

(5) *Reports of Loss or Theft or Attempted Theft or Unauthorized Production of Special Nuclear Material.* In order to reduce the possibility that reporting requirements would be overlooked, one commenter wanted to eliminate § 74.11 and have all the reporting requirements consolidated in § 70.52 and proposed § 70.50. Another commenter wanted to include recovery from a centrifuge crash(s) in addition to the 24 hour start-up process exclusion so that a temporary existence of enrichments greater than that authorized during such recovery would not be a violation of the regulations.

Response. The first comment was not adopted. Reporting requirements applicable to a variety of SNM licensees

are dispersed throughout part 74. The Commission does not see any benefit to removing reporting requirements from part 74 for one particular licensee. The second comment was not adopted for two reasons. First, because malfunctioning (crashed) centrifuge machines are normally shut down and isolated from production gas streams and left in place. Because of the configuration of the enrichment facilities, it is generally not practical to repair single centrifuge machines. Second, because the staff considers a period of adjustment following a centrifuge crash to be equivalent to a start-up process and either the adjustment or the start-up could be accomplished in 24 hours. For enrichment facilities employing laser isotope separation or gaseous diffusion technology an initial surge of HEU at start-up does not occur.

(6) *Need for New Section.* One commenter questioned the need for a new section instead of adding new requirements to existing § 74.31. Concern was also expressed about why the language in the proposed § 74.33 was not identical to the existing language of § 74.31.

Response. The new § 74.33 is a stand alone regulation applicable only to uranium enrichment facilities. Section 74.31 applies to fuel fabrication licensees. Each section has individual supporting guidance documents which described in detail the intent of the requirements contained in each section. Moreover, § 74.33 contains requirements unique to an enrichment facility, and therefore cannot be identical to § 74.31.

(7) *Performance Objectives.* One commenter was concerned that mass spectrometers could be used to produce gram quantities of HEU over a period of time and that they should be included in the regulation by allowing the production of enriched uranium to the quantities by enrichment level specified by low strategic significance. The commenter questioned how "accurate," "current," "reliable" knowledge must be and whether the terms apply equally to source material, SNM, product, tails, scrap, waste, in storage as items or in processing equipment. Also, the commenter wanted § 74.33(a)(1) to match the wording of § 74.31(a)(1) because the commenter believes they are objectives. The commenter wanted to delete the word "any" from § 74.33(c)(2) because the commenter wanted to allow production of enriched uranium greater than 10 percent provided the quantity limits for SNM of low strategic significance were not exceeded. Since during start-up of a centrifuge cascade a surge of uranium

enriched to more than 10% is a normal occurrence, one commenter wanted to add to the end of 10 CFR 74.33 (a)(5) and (c)(5)(i) the following: "for centrifuge enrichment facilities this requirement does not apply to each cascade during its start-up process, not to exceed the first 24 hours.", so that no resolution would be required. One commenter was concerned about not retaining a performance objective similar to § 74.31(a)(3) which would "aid in the investigation and recovery of missing material" for consistency.

Response. The comment to allow production of HEU has not been adopted because mass spectrometers are not production equipment but analytical equipment. Also, even if one considered mass spectrometers to be production equipment, it would be extremely difficult to product one effective kilogram of SNM over any reasonable time period. (See response to comments on Scope of Rule.)

Concerning the second comment, performance objectives are broad statements of the principal parts of the required program. Guidance on how "accurate," "current," and "reliable" knowledge should be and to what extent the terms should apply to each material type is provided in the regulatory guide.

The objective in § 74.33(a)(1) has been rewritten to more closely parallel the wording of § 74.31(a)(1).

The word, "any" was deleted from § 74.33(a)(2) because it is not necessary but, the general intent remains the same, that is production is allowed only up to 10 percent U²³⁵.

The fourth comment was accepted and the commenter's suggested words, "for centrifuge enrichment facilities this requirement does not apply to each cascade during its start-up process, not to exceed the first 24 hours," were added to § 74.33(a)(5). Further, § 74.33(c)(5) was modified to include the intent of the comment.

New performance objectives, to provide information to aid in the investigation of missing uranium and the unauthorized enrichment of uranium, have been added in § 74.33(a) (7), (8), and (9) in response to the last comment related to keeping the requirements in § 74.31(a)(3) for these facilities.

(8) *Implementation.* One commenter wanted to change the phrase "2 years prior to facility start up" in § 74.33(b)(1) because the start date of the 2 year period can not be known until the actual end date is known. The commenter suggested specifying a maximum time interval following the initial license application. The same commenter stated that the wording of § 74.33(b) was faulty

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in that licensees could be in noncompliance if NRC did not approve the fundamental nuclear material control (FNMC) plan in a timely manner, and unclear as to whether the FNMC plan must be implemented prior to receipt of (1) 5,000 grams U^{235} in a single receipt, (2) cumulative receipts of 5,000 grams U^{235} within a material type, or (3) 5,000 grams U^{235} from all receipts. The commenter also provided a suggested rewrite of § 74.33(b). Another commenter stated that the two year period for submittal of an FNMC plan is too long and that a preliminary plan should be submitted within one year with the final plan two months before start-up because the commenter plans to build and partially operate an enrichment facility in two years and facility configuration would not be finalized at the start of construction. Another commenter wanted to add to the end of § 74.33(b)(2) the phrase, "whichever comes later" so that the MC&A program does not need to be implemented until after the receipt of more than 5,000 grams U^{235} because of long construction times.

Response. The staff reconsidered the timing of the submission of the FNMC Plan. The final rule now requires the FNMC Plan to be submitted as part of the application which is consistent with § 70.22(b). As for the last suggestion, § 74.33(b)(2) was modified so as to clarify the Commission's intent to have the FNMC plan implemented prior to either the receipt of 5,000 grams U^{235} or the issuance of a license to test or operate the enrichment facility, whichever occurs first.

(9) *System Features and Capabilities.* One commenter expressed concern because § 74.33(c)(1) did not have the same wording as § 74.31(c)(1). In the commenter's view, deletion of word "critical" suggests that the NRC is downgrading the importance of key procedures. Also, the commenter indicated that the use of "periodic review" instead of "adequate review" weakened the requirement. One commenter questioned the use of "accurately" in describing measured values in § 74.33(c)(2), because in performance-based regulations the licensee should be allowed on the bases of cost effectiveness to choose the individual measurement accuracy to comply with § 74.33(c)(3). In § 74.33(c)(3)(ii), one commenter wanted to add the phrase " U^{235} of the" before "active inventory" for clarity. One commenter wanted to reword § 74.33(c)(3)(iii) for clarity because the commenter was not sure of the meaning of the phrase "so the licensee can

satisfy this requirement." One commenter stated that the lead-in clause of § 74.33(c)(4) is confusing in that the words "current and reliable knowledge" are also used in § 74.33(c)(6). One commenter appeared to be trying to help clarify inventory requirements for different types of materials by using the DOE material type codes. The commenter also suggested a parenthetical addition (i.e., "uranium in cascades"). One commenter suggested rewording § 74.33(c)(5)(i) to allow production of enriched uranium to quantities by enrichment level as specified by low strategic significance. One commenter wanted to rewrite § 74.33(c)(5)(ii) using the argument that it is the illegal use and distribution of such material, not its production that should be prevented. Three commenters wanted the wording of § 74.33(c)(6) to be identical to § 74.31(c)(6), which contained an exemption for solutions having less than 5 grams U^{235} per liter. One commenter wanted to include depleted uranium in the list of exempted items because of cost. One commenter wanted to rewrite § 74.33(c)(7) and change the term "statistically significant" to "standard error," claiming that standard error has a defined level of significance. One commenter wanted the U^{235} concentration of tails to be determined using by-difference accounting instead of measurements to save the cost of measuring the tails.

Response. The word "critical" was omitted from § 74.33(c)(1) to ensure that all MC&A procedures are written and periodically reviewed.

The periodic review of procedures is important to determine if the as written procedures are still applicable and reflect current practices. Any review has to be adequate to meet the regulatory intent of regulations. Therefore, this second comment was not adopted.

The Commission agrees with the comment to delete the word "accurately" from § 74.33(c)(2) because the quality of measurement performance is controlled by § 74.33(c)(3).

The comment to add the phrase " U^{235} of the" before "active inventory" in § 74.33(c)(3)(ii) was adopted as a clarifying change consistent with the intent of the proposed language of the rule.

Section 74.33(c)(3)(iii) has been rewritten using the commenter's language to clarify the intent of "those requirements."

As suggested, the lead in clause of § 74.33(c)(4) has been rewritten without using the words "current and reliable knowledge."

The suggestion to use DOE material type codes was not adopted because it is sufficient to define the term for the material type in 10 CFR chapter I and a code number would not add any new information. In addition, the types of materials to be inventoried, i.e., natural, depleted, and enriched uranium, are listed in § 74.33(c)(4)(i). The parenthetical addition (e.g., in the enrichment equipment) was added to § 74.33(c)(4)(i) to clarify where in process uranium is located. The commenter's use of "cascade" is too restrictive for a generic rule but, the more general term "enrichment equipment" captures the intent. Therefore this comment was partially adopted.

Although § 74.33(c)(5)(i) was rewritten using the commenter's language, with an added time restraint of 370 calendar days, the revised language refers to SNM of moderate strategic significance, and detection of a specific quantity, i.e., up to 10,000 grams, of uranium enriched to between 10 and 20 percent is required because smaller quantities of this material may be difficult to detect using currently available detection equipment in a gas centrifuge enrichment facility. Hence this revised language does not allow production of enriched uranium greater than 10 percent as was suggested by the commenter but the detection program has to be able to detect quantities less than those of moderate strategic significance within 370 days. In addition, suggested measurement systems to be used by the detection program are discussed in the regulatory guide.

The comment to rewrite proposed § 74.33(c)(5)(ii) has not been adopted because both the Atomic Energy Act and the Commission's longstanding defense-in-depth policy that both unauthorized use and production of HEU should be prevented.

The suggestion to reword § 74.33(c)(6) to reflect § 74.31(c)(6) was not adopted because enrichment operations generally do not produce a significant number of long-lived items such as solutions having less than 5 grams U^{235} per liter. Nonetheless, § 74.33(c)(6) was restructured to clarify the amounts exempted.

The suggested rewording of § 74.33(c)(7) has not been adopted. Neither "standard error" nor "statistically significant" are defined in 10 CFR part 74 but, the level of significance for "statistical significance" is provided in the accompanying guidance.

The comment to allow by-difference accounting of U^{235} in tails was not

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adopted because a material balance cannot be established if the material in tails is not measured.

(10) *Hardware*. One individual commenter wanted to add to § 74.33 a requirement that plant hardware be designed to permit and facilitate independent "go/no-go" verification of the absence of unauthorized enrichment. This commenter also suggested consulting with IAEA on the plant hardware design prior to authorization of construction.

Response. The Commission does not believe that the suggested hardware design is either necessary or practical. Based upon its experience with safeguarding SNM in licensed material activities, the Commission is convinced that a proper MC&A program can provide adequate protection against unauthorized enrichment, and assurance that should it occur, it will be detected in a timely manner. Therefore, the Commission does not believe it is necessary to impose such a requirement. Furthermore, as it is the NRC's responsibility to license the enrichment facility, its requirements for protection of health and safety of the public and common defense and security take precedence over IAEA inspection schemes and protocols. Nonetheless, these MC&A requirements were developed cognizant of IAEA programs because the U.S. is a member country of IAEA and complies with the IAEA requirements. Consequently, the suggestion of the commenter is refused.

Discussion of Final Rule Text

This section discusses the final rule text and modifications made in response to the proposed rule. Throughout the following discussion, referring to the text of the final regulations may aid in understanding the specific points of this discussion.

Part 70—Domestic Licensing of Special Nuclear Material

The phrase "operate an uranium enrichment facility" has been added to § 70.22(b) for clarification.

The phrase "at an uranium enrichment facility" has been added following the words "source material in § 70.32(c)(1)" to clarify that only uranium source material at an enrichment facility is subject to part 70 requirements.

Part 74—Material Control and Accounting of Special Nuclear Material

Section 74.4 Definitions

Based on public comment a definition of the term *item* has been added.

Section 74.11 Reports of Loss or Theft or Attempted Theft or Unauthorized Production of Special Nuclear Material

This section has been revised to be consistent with the proposed requirements of § 74.33(c)(5).

Section 74.31 Nuclear Material Control and Accounting for Special Nuclear Material of Low Strategic Significance

Based on public comment, § 74.31(a) is revised to include production facilities licensed pursuant to part 70 in the list of facilities to which this section does not apply.

Section 74.33 Nuclear Material Control and Accounting for Uranium Enrichment Facilities Authorized To Produce Special Nuclear Material of Low Strategic Significance

Based on public comment, § 74.33(a)(1) has been rewritten to clarify the general objective to both maintain the appropriate information and to periodically confirm the quantities and locations of the source material and special nuclear material by conducting physical inventories. Specific objectives for physical inventories are subsequently provided in § 74.33(c)(4). Thus, the phrase "and periodically confirm the quantities and locations of" was added to § 74.33(a)(1).

Based on public comment, the word "any" in proposed § 74.33(a)(2) between "detect" and "production" has been deleted. Also, in proposed § 74.33(a)(5) the word "any" between "of" and "production" has been deleted. The removal of the word "any" eliminates the apparent restrictions and does not change the intent of the rule.

Typographical errors were identified by public comment in proposed § 74.33(a) (3), (5), and (6). The word "for" between "production" and "uranium" has been changed to "of" in each of the three identified general performance objectives.

New performance objectives § 74.33(a) (7), (8), and (9) to provide information to aid in the investigation of missing uranium and unauthorized enrichment have been added based on public comment.

In proposed § 74.33(b)(1), the introductory phrase "no later than 2 years prior to facility start up" has been deleted. This was necessary to make this section consistent with existing § 70.22(b) which requires the submittal of the applicants program for control and accounting of the SNM, that will be in its possession under the license, with the license application. Section 74.33(b)(1) also was expanded to include the recordkeeping requirements of

proposed § 74.33(d) in the submitted plan.

For clarity, the phrase "based on all measurement error contributions," has been added after inventory difference in § 74.33(c)(3)(ii) to ensure that licensees understand that the standard error of inventory difference is calculated using only those variance contributions due to measurements.

Based on public comment, the word "accurately" has been deleted before the words "measured values" in § 74.33(c)(2). The word "accurately" is not needed because § 74.33(c)(3) has bounds for the control of all MC&A measurement systems.

For clarity, the phrase "based on all measurement error contributions," has been added after inventory difference in § 74.33(c)(3)(ii).

Based on public comment, the clarifying phrase "of (c)(3) (i) and (ii) of this section" was added to § 74.33(c)(3)(iii).

Based on public comment, the introductory statement of proposed § 74.33(c)(4) has been revised. The recordkeeping requirements of proposed § 74.33(d) are required to be in the FNMC plan, so the requirement for current and reliable data does not need to be established twice.

In proposed § 74.33(c)(4)(i), the parenthetical phrase (e.g., in the enrichment equipment) has been added to clarify the term "in-process" because a public comment appeared to incorrectly interpret "in-process" (comment requesting the NRC to add a definition for "dynamic inventory").

The proposed § 74.33(c)(5) has been revised by deleting "any" and modifying (c)(5) (i) and (ii) and renumbering proposed (c)(5)(ii) as (c)(5)(iii) to require that the licensee's detection system be capable of detecting: the production of uranium enriched to 10 percent or more in the isotope U²³⁵, to the extent that SNM of moderate strategic significance could be produced within any 370 calendar day period; the production of HEU; and the unauthorized production of uranium of low strategic significance.

The proposed § 74.33(c)(6) was rearranged and based on public comment the phrase "from the requirements of (c)(6) (i) and (ii)" was added.

Having considered all comments received, the Commission has determined that the final rule should be promulgated.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy

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Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that these amendments are not a major Federal action significantly affecting the quality of the human environment, and therefore an environmental impact statement is not required. The rule is mainly administrative in nature and would not change any requirements that could have significant environmental impact. The final rule will provide assurance through material control and accounting measures and other appropriate requirements, that only enriched uranium of low strategic significance as authorized by the license is produced at a licensed enrichment facility. There may be some increase in occupational exposure stemming from safeguards-related activities such as data recording, inspecting, or sample taking, but likely not enough to be measurable or identifiable. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget approval number 3150-0123 at the proposed rule stage. Additional requirements contained in the final rule will not become effective until OMB approves them. Notice of OMB approval will be published in the **Federal Register**.

Regulatory Analysis

The Commission prepared a draft regulatory analysis for the proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission.

The Commission requested public comments on the draft regulatory analysis, but no comments were received. The draft regulatory analysis has been revised to reflect the addition of three new performance objectives contained in § 74.33(a) (7), (8), and (9), and the fact that a license application has been received by the Commission for the construction and operation of an uranium enrichment facility. The final regulatory analysis is available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rulemaking will not have a significant economic impact on a substantial number of small entities. The final rule will affect only persons who build or operate enrichment facilities producing enriched uranium of low strategic significance. The owners of enrichment facilities do not fall within the scope of the definition of "small entities" set forth in section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR part 121.

Backfit Analysis

The Commission has determined that a backfit analysis is not required for this final amendment, because the backfit rule, 10 CFR 50.109, applies only to new requirements for power reactors. See 50 FR 38097 (September 20, 1985) (final backfit rule). However, as noted above, the Commission has prepared a regulatory analysis examining the benefits and impacts of these amendments.

List of Subjects

10 CFR Part 2

Administrative practice and procedures, Antitrust, Byproduct material, Classified information, Penalty, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 40

Government contracts, Hazardous materials—transportation, Nuclear materials, Criminal penalty, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 70

Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Criminal penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 74

Accounting, Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Criminal penalty, Radiation protection, Reporting and recordkeeping requirements,

Scientific equipment, Special nuclear material.

For the reasons set forth in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the Commission is adopting the following amendments to 10 CFR parts 2, 40, 70, and 74.

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

58 FR 29521
Published 5/21/93
Effective 6/21/93

Licensees' Announcements of Safeguards Inspections

See Part 73 Statements of Consideration

59 FR 35618
Published 7/13/94
Effective 10/11/94

10 CFR Parts 40, 72, 74, 75, 150

RIN 3150-AE35

Licensee Submittal of Data in Computer-Readable Form

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to require certain licensees to submit data to the NRC in computer-readable format. The final rule streamlines the collection of nuclear material transaction data and increases the accuracy of the reported information. The final rule will save money for both NRC and licensees in the data collection process.

EFFECTIVE DATE: October 11, 1994.

FOR FURTHER INFORMATION CONTACT: Richard H. Gramann, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 415-8118.

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SUPPLEMENTARY INFORMATION:

Background

The NRC has a major interest in the potential use for computer-readable submittal. This innovation not only can result in monetary savings, but also can increase efficiency and accuracy of data collection efforts. In the past, the NRC has permitted the use of computer-readable forms as well as the use of computer generated facsimiles of the printed forms. Many licensees now generate their own facsimiles. The latest revision of "Personal Computer Data Input for NRC Licensees" (Nuclear Materials Management and Safeguards System (NMMSS) Report D-24) contains specific procedures for submitting in computer-readable format: DOE/NRC Form 741, "Nuclear Material Transaction Report"; DOE/NRC Form 741A, "Nuclear Material Transaction Report (Continuation Page)"; DOE/NRC Form 740M, "Concise Note"; DOE/NRC Form 742, "Material Balance Report"; and DOE/NRC Form 742C, "Physical Inventory Listing." The amendments make mandatory the reporting in computer-readable format prescribed by the D-24 document. These amendments eliminate the need for paper forms, thus providing a cost saving for the NRC in satisfying its statutory and treaty obligations.

The amendments affect each licensee who transfers, receives, or adjusts the inventory, in any manner, of uranium or thorium source material of foreign origin by 1 kilogram or more. Each specific licensee who transfers or receives 1 gram or more of contained uranium-235, uranium-233, or plutonium would also be affected.

These amendments are intended only to take advantage of current computer technology and to make the data collection process more efficient and less costly. The Commission believes there will be minimal costs associated with the implementation of these amendments. Many licensees already have their material accounting automated and can generate computer-readable reports. For those licensees who have not yet automated their reporting, a diskette with the appropriate formats and user prompts may be obtained from the NRC to facilitate this process. Licensees may obtain a copy of the NMMSS report or the diskette by writing the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety and Safeguards, Washington, DC 20555-0001.

On January 26, 1993 (58 FR 6098), the Commission published a proposed rule in the *Federal Register* to make mandatory licensee submittal in

computer-readable format. A 90-day comment period expired on April 26, 1993. Comments were received from nine respondents. Two comments were not in favor of the amendments, whereas the others expressed approval and encouragement to take advantage of today's technology. Several constructive suggestions were made and are included in the summary of public comments.

Summary of Public Comment

A summary of the public comments and a clarifying response follows:

(1) *Continued requirement for hard copy forms.* Several respondents expressed the continued need for hard copy forms. One commenter stated their material control and accounting (MC&A) program is based upon a "paper trail" utilizing the DOE/NRC Form 741. Another commenter stated the continued requirement for submitting hard copies to various Department of Energy contractors. Another commenter raised the question of storage of records for a period of time specified by Commission regulations. Concern also was expressed regarding secondary distribution requirements of hard copy DOE/NRC Form 741 for certain domestic transactions and all import and export transactions. Finally one commenter stated the current requirements, which provide for both computer-readable and hard copy, are the more acceptable.

The final amendments require licensees to submit computer-readable reports to the NRC in a format prescribed in NMMSS Report D-24. The amendments do not preclude other formats used for other purposes. Many licensees already generate facsimile reports for satisfying given requirements. Licensees that have no capability to produce these facsimiles may use the diskette provided by the NRC which can generate a facsimile (either hard copy or disk file for storage) of all forms subject to these amendments. With regard to records retention, the NRC permits the storage of records on electronic media with the capability for producing legible, accurate, and complete records during the required retention period. This would include computer generated facsimiles of forms subject to these amendments. For the reporting system to operate efficiently, computer-readable submittal for NRC's use is necessary.

(2) *Accepting shipper's values.* A respondent suggested that the action code and date on the computer-readable DOE/NRC Form 741 for a shipment can be easily changed by the recipient to reflect accepting shipper's values.

The diskette that is available from the NRC includes a program for editing the file of a computer-readable DOE/NRC Form 741 to edit the action code and date to reflect accepting shipper's values.

(3) *Telecommunication of licensee submittal.* Four respondents urged the transmission of the computer-readable files over a modem instead of using diskettes.

There is no disagreement with the commenters that modem transmission is desirable. Transmitting files by modem to satisfy reporting requirements is an option of these amendments. The NRC will work with any licensee desiring this option.

(4) *Revision of guidance documents.* Several respondents noted the need to revise the guidance documents: NUREG/BR-0006, "Instructions for Completing Nuclear Material Transaction Reports and Concise Note Forms"; NUREG/BR-0007, "Instructions for Completing Material Balance Report and Physical Inventory Listing"; and NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees," to be compatible with the submittal of computer-readable formats.

NMMSS Report D-24 has been revised to include all the forms required in these amendments. The other guidance documents will be revised, as needed, to reflect the use of computer-readable forms to replace the paper forms.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in the categorical exclusion 10 CFR 51.22(c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval numbers 3150-0003, -0057, -0004, and -0058.

Because the rule will eliminate the need for certain paper forms, the public burden for this collection of information is expected to be reduced. The reduction in burden for the DOE/NRC Forms 741, 741A, 742, and 740M is estimated to average .25 hours per response. The reduction in burden for the DOE/NRC Form 742C is estimated to average 2 hours per response, including the time for reviewing instructions,

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searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the estimated burden reduction or any other aspect of this collection of information, including suggestions for further reducing reporting burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019 (3150-0003, -0004, -0057, and -0058), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

These final amendments have no significant impact on State and local governments and geographical regions. They have a significant positive impact on the efficiency and accuracy of the data collection process. The final amendments do not have a significant impact on health, safety, and the environment. This rule requires that all licensees submit computer-readable reports regarding special nuclear material transactions. The NRC will realize a significant cost savings. Licensees have already demonstrated their computer expertise by generating near-perfect copies of the current forms on Laser Jet printers. Generating computer-readable data in accordance with a prescribed format offers less burden than producing these near-perfect copies. The rule will facilitate the collection of data by the NRC to satisfy its statutory and treaty obligations. This constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this change does not have a significant economic impact on a substantial number of small entities. This final rule affects all licensees required to report special nuclear material transactions using DOE/NRC Forms 741, 741A, 742, 742C, and 740M. Owners of nuclear power plants and fuel fabrication plants have already automated most, if not all, of their material accounting program and can easily generate computer-readable reports. Other affected licensees include laboratories, universities, colleges, medical clinics and hospitals, some of which may fall within the scope of the NRC's size standards for determination of which NRC licensees qualify as small entities (December 9, 1985; 50 FR 50241).

One commenter stated that the proposed rule would increase the burden for licensees with manual accountability systems by requiring manual entry of data to diskette and a hard-copy data check for accuracy. Entities that may not yet have automated their reporting may obtain a diskette from the NRC to assist them in satisfying their reporting requirements. No respondent has stated a lack of computer capability to use such a diskette, and the likelihood of such a need is remote in view of the types of affected licensees. In addition, NRC staff experience with computer readable transfer of information indicates less burden and more efficiency for licensees and the NRC than transfer of hard-copy information. For these reasons, any initial cost associated with preparation of computer readable reports should be minimal and lead to a reduction in reporting burden for all affected licensees.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this final rule because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 40

Criminal penalties, Government contracts, Hazardous materials—transportation, Nuclear materials, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 74

Accounting, Criminal penalties, Hazardous materials—transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

10 CFR Part 75

Criminal penalties, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 150

Criminal penalties, Hazardous materials—transportation, Intergovernmental relations, Nuclear materials, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 40, 72, 74, 75, and 150.

59 FR 48944

Published 9/23/94
Effective 10/24/94

Certification of Gaseous Diffusion Plants

See Part 76 Statements of Consideration

60 FR 24549

Published 5/9/95
Effective 5/9/95

Changes to NRC Addresses and Telephone Numbers

See Part 2 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS -- ENERGY

PART
75

**SAFEGUARDS ON NUCLEAR MATERIAL—
IMPLEMENTATION OF US/IAEA AGREEMENT**

STATEMENTS OF CONSIDERATION

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General Information

See Part 1 Statements of Consideration

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear Reactor Regulation

See Part 19 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 31651
Published 8/19/88
Effective 9/19/88

Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

See Part 72 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 33426
Published 7/29/92
Effective 8/28/92

Minor Amendments to the Physical Protection Requirements

See Part 73 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

59 FR 35618
Published 7/13/94
Effective 10/11/94

Licensee Submittal of Data in Computer-Readable Form

See Part 74 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART
76

CERTIFICATION OF GASEOUS DIFFUSION PLANTS

STATEMENTS OF CONSIDERATION

59 FR 48944
Published 9/23/94
Effective 10/24/94

10 CFR Parts 19, 20, 21, 26, 51, 70, 71,
73, 74, 76 and 95

RIN 3150-AE62

**Certification of Gaseous Diffusion
Plants**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to add a new part that includes the requirements for certification of uranium enrichment activities of the United States Enrichment Corporation (the Corporation) in its operation of the two gaseous diffusion plants that the Corporation is leasing from the U.S. Department of Energy (DOE). These two plants are known as the Portsmouth Plant and the Paducah Plant, located at Piketon, Ohio, and Paducah, Kentucky, respectively. These regulations are being promulgated to establish standards for the protection of the public health and safety from radiological hazards and provide for the common defense and security, including adequate safeguards. A number of conforming amendments are also being made to other NRC regulations. In addition, appendix A to part 95 is being removed, since this material is now available in a separate publication.

EFFECTIVE DATE: October 24, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. C.W. Nilsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington,

DC 20555, telephone (301) 415-6209; Mr. C.B. Sawyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-8174; or Mr. J.K. Everly, Office of Administration, Division of Security, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-7048.

SUPPLEMENTARY INFORMATION:

Background

The President signed H.R. 776, the "Energy Policy Act of 1992" (the Act), into law on October 24, 1992. The Act amended the Atomic Energy Act of 1954 (AEA), to establish a new Government Corporation, the U.S. Enrichment Corporation (the Corporation), for the purpose of managing and operating the uranium enrichment enterprise owned and previously operated by the Department of Energy (DOE). Section 1701 of the AEA, as amended, provides that within 2 years after enactment of the legislation, the NRC is to promulgate standards that will apply to the two operating gaseous diffusion plants to protect the public health and safety from radiological hazards, and to provide for the common defense and security.

Section 1701(b)(2) of the AEA, as amended, directs the NRC to establish a certification process under which the two gaseous diffusion plants at Piketon, Ohio, and Paducah, Kentucky, to be operated by the Corporation, will be certified annually by the NRC for compliance with those standards.

On February 11, 1994 (59 FR 6792), the Commission published a proposed new part 76 in the *Federal Register* for comment establishing requirements and procedures for the certification process

by addition of this new part to chapter I of title 10 of the Code of Federal Regulations. In addition to the new part, a number of conforming changes to the provisions of Chapter I of Title 10 of the Code of Federal Regulations were also proposed which are necessary to implement the new part. The comment period expired on April 12, 1994.

The new 10 CFR part 76 is based upon comparable NRC requirements that have been in place for a number of years. The NRC believes these requirements are adequate and appropriate for the gaseous diffusion plants. The NRC will assume regulatory oversight authority after it completes the first certification process in late 1995.

**Summary of Requirements and
Analysis of Public Comments**

The Nuclear Regulatory Commission is amending its regulations to add a new 10 CFR part 76 entitled, "Certification of Gaseous Diffusion Plants." This new part includes procedural requirements, generally applicable NRC health and safety standards, technical safety requirements, and safeguards and security requirements specific to the gaseous diffusion plants. The Commission will use the requirements included in this new 10 CFR part 76 to satisfy Energy Policy Act requirements. The certification requirements in this rulemaking include actions that are either required by the Act or required by the Commission's procedures to protect the public health and safety from radiological hazards, to provide for the common defense and security, and to ensure adequate safeguards. Because this action does not constitute a licensing action, many of the processes associated with issuance of a license do not apply in this certification action.

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Twenty comment letters were received on the proposed rule and are available for public inspection, and copying for a fee, at the Commission's Public Document Room located at 2120 L Street, NW. (Lower Level), Washington, DC. The comments on the proposed rule came from a variety of sources that included the Corporation, the Department of Energy, citizens' groups, industry representatives, other Government agencies, and legal firms. The comments and their resolutions are discussed below and, to the extent possible, are arranged under the identified section of the rule to which they are related.

A. General Requirements

The general requirements are based on and mainly derived from 10 CFR Part 70. Part 70 contains the requirements used by the Commission to license the possession and use of special nuclear material at major fuel cycle facilities for which the NRC has regulatory responsibility for protecting public health and safety and the common defense and security. Specific sections in this new part, which are based on 10 CFR Part 70 as modified for the certification process, include the following:

Section 76.1 Purpose. This section defines the purpose of 10 CFR part 76 to be limited to certification of the existing 40-year-old gaseous diffusion plants previously operated by the DOE.

A comment was received indicating that reference made to "life of the plant" should be changed to "duration of lease." The final regulation has been so changed.

Section 76.2 Scope. This section defines the scope of part 76 to cover the operation of gaseous diffusion plants previously operated by DOE and now leased to the Corporation, and clarifies that the new part applies only to those plants.

Comments were received indicating that the rules should be clarified as only applying to operation of those portions of the diffusion plants leased to the Corporation. The appropriate changes to the rule have been made.

Section 76.4 Definitions. This section contains definitions of terms used in this part.

In response to comments received, several definitions have been added to, or revised in the final rule as follows:

Corporation. In response to a comment by the Corporation, the NRC agrees that the definition should be clarified to show the continued applicability of Part 76 to the operation of the gaseous diffusion plants after

privatization of the Corporation if privatization were to occur.

Alert and Site area emergency. Definitions are added for consistency with other regulations.

Radioactive material. Added as requested for clarification.

Unreviewed safety question. This definition was suggested by DOE, and was added in response to comments by DOE and the Corporation, to clarify its use in § 76.68 as one factor in limiting changes that the Corporation can make without prior Commission approval.

Section 76.5 Communications. This section describes requirements for verbal and written submissions to the Commission.

No comments were received on this section.

Section 76.6 Interpretations. This section contains requirements for interpretations of these regulations that are authorized by the Commission.

No comments were received on this section.

Section 76.7 Employee protection. This section specifies activities that are protected and prohibits discrimination against an employee for engaging in protected activities.

Comments were received concerning the transition from operation under DOE orders to operation under NRC regulations. Specifically, it was suggested that various requirements for posting of NRC regulations and forms be delayed in some cases until after the NRC has taken action on the application. This section and § 76.60 have been modified to provide additional flexibility in the posting of notices by requiring posting not later than the date of the Director's initial decision on certification.

One commenter recommended that the final rule include a reference to activities protected by the National Labor Relations Act. The labor standards and/or statutes applicable to the Corporation are specified in section 1312(d) of the AEA. No further delineation of those standards and/or statutes is necessary for inclusion in NRC's certification regulations.

A comment was received expressing a perceived lack of willingness of the NRC to solicit comments from organizations that represent the plant workers. This rulemaking has been done under full public participation as required by NRC procedures within the time limits imposed by the legislation for transferring operation of the facilities to the Corporation. The certification procedure provides an opportunity for public participation at all stages of the process through written comments and

participation in public meetings to be held near the sites.

Section 76.8 Information collection requirements: OMB approval not required. This section indicates that the information collection requirements contained in this part need not be reviewed and approved by the Office of Management and Budget in accordance with the Paperwork Reduction Act.

No comments were received on this section.

Section 76.9 Completeness and accuracy of information. This section specifies that all information provided to the NRC must be complete and accurate.

No comments were received on this section.

Section 76.10 Deliberate misconduct. This section describes prohibited activities and states that violations are subject to enforcement action.

No comments were received on this section.

Section 76.23 Specific exemptions. This section specifies that the Commission may grant exemptions from the requirements in part 76 provided certain conditions are met.

A comment was received from the Corporation recommending that the rule be expanded to provide that the Commission may grant exemptions where certain "special circumstances" exist due to the "unique status" of the Corporation. The special circumstances presented included a request by the Corporation or DOE that an exemption would be in the furtherance of the common defense and security of the United States, the nonproliferation of atomic weapons, or any of the other important governmental functions identified in the statutory purposes for the Corporation set forth in Section 1202 of the AEA. As proposed, § 76.23 already provides that NRC may grant exemptions and specifically includes consistency with the common defense and security of the United States as a prerequisite for granting an exemption. The NRC does not conclude that the Corporation's "unique status" introduces any additional considerations in considering requests for exemptions not already within the purview of § 76.23.

Section 76.65 Inalienability of certificates. This section sets forth the conditions for transfer of certification.

Comments were received that the proposed rule should address inalienability of certificates. This section has been added to the final rule.

Section 76.76 Backfitting. This section sets forth the conditions for requiring backfitting of the plants and

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establishes backfit guidelines. Backfitting is defined as any NRC-required modification or addition to systems, structures, or components of the facility, or procedures or organizations used to operate the facility.

Commissioner Rogers was particularly interested in comments on two issues regarding the provisions of this section: (1) Whether the provisions of § 76.76 should become effective immediately when 10 CFR part 76 becomes final, as would happen were the proposed section to remain unchanged, or whether there should be some interim period before these provisions become effective (e.g., until completion of the first annual certification following initial certification) and; (2) Whether the standard for requiring a backfit should be that of § 76.76(a)(3), “* * * a substantial increase in the overall protection of the public health and safety or the common defense and security * * *” or the less stringent standard of cost-effectiveness that is contained in section 1(b)(6) of Executive Order 12866 of September 30, 1993, “* * * a reasoned determination that the benefits of the intended regulation justify its costs.”

A number of commenters agreed that the provisions of § 76.76 should be made effective when the rule becomes final. There were no comments received in support of a delay in the implementation of the backfit provisions. However, the Ohio Citizens for Responsible Energy opposed the application of the proposed backfit requirements to these facilities. They commented that: (1) Operations have not been trouble-free and environmentally benign, (2) the NRC has no previous experience with these plants, (3) the backfit rule would essentially “freeze” the plant design and operational practices, and (4) the NRC must be free to demand changes in the design and operation of these plants. They further commented that if the NRC establishes any backfit standard it should be the standard of Executive Order 12866: “a reasoned” determination that the benefits of the intended regulation “justify its costs.”

The Corporation, DOE, and the Nuclear Energy Institute agreed with incorporation of the backfit provisions as written. The Corporation specifically supported the rewrite of 10 CFR 50.109, as proposed, as being consistent with NRC practice.

In response to the comment suggesting that the proposed backfit provisions would prevent the Commission from taking action as is required to protect public health and

safety, the Commission does not apply backfit provisions in a manner which would inhibit imposition of requirements necessary to achieve an adequate level of safety. Under the backfit requirements in the final rule, costs are considered only for determining the need to impose requirements that provide for enhanced levels of safety that go beyond those basic requirements needed to provide adequate protection of the public health and safety.

The final rule requires a cost benefit analysis for any new requirement or NRC staff position unless the modification is required to bring the facility into compliance with written rules or orders, or into conformance with written commitments by the Corporation, or if the change is necessary to ensure that the facility provides adequate protection of the public health and safety. The final rule is unchanged.

Section 76.81 Authorized use of radioactive material. The section sets forth requirements for the Corporation's possession and use of radioactive material.

The Corporation commented that it wants language in the regulations which would authorize it to receive, possess, own, acquire possession of, and use radioactive materials in places and for purposes not covered by the certificate, if otherwise authorized by law. Such authorization would not be part of certification and would involve approval by other Federal agencies. This comment goes beyond NRC's authority with respect to certification of the gaseous diffusion facilities. To the extent that the Corporation wants NRC to approve activities associated with radioactive materials involving other locations and other activities, other locations and activities are not included in the certification authority contained in the AEA, as amended by the Energy Policy Act. The final rule has been revised to make clear that to the extent the Corporation engages in activities not covered by the certification process, it may do so as long as it complies with all applicable State and Federal regulations.

Section 76.83 Transfer of radioactive material. This section contains requirements for the Corporation's transfer of radioactive material.

DOE recommended that the provision of § 76.83(d)(3) concerning emergency shipments be deleted as they are not defined and continued implementation of current DOE practices provides methods for shipment of material outside the normal process. This comment was not adopted and the

section was retained to provide the flexibility for such transfers under NRC certification in the event it would be needed and is not inconsistent with current NRC practices.

Section 76.89 Criticality accident requirements. This section contains monitoring requirements for criticality accidents.

Commenters requested that § 76.89 be revised to specifically state that certain areas do not require criticality alarms: (1) Areas containing less than 700 grams of U-235 contained in uranium of any enrichment, (2) areas containing less than 1500 grams of U-235 contained in uranium enriched up to 4%, (3) areas containing less than 1400 grams of U-235 contained in uranium enriched up to 5%, (4) areas where special nuclear material is packaged and stored in approved containers and in isolated arrays in compliance with 10 CFR part 71, and (5) process buildings containing homogeneous uranium material enriched to less than 1%. The NRC does not intend to require monitoring for areas where quantities of enriched uranium are controlled so that a criticality accident is not credible. Rather than attempting to specify quantity limits, the rule was modified to include a generic provision such that criticality alarms will not be required for such controlled areas.

Section 76.91 Emergency planning. This section contains emergency planning requirements.

Some commenters agreed with the emergency planning provisions as proposed. Others recommended that the emergency planning provisions be revised. A commenter's proposed changes were to (1) add a “general emergency” category to the classification of accidents, (2) give annual briefings and tours to fire, police, medical, and other emergency personnel, (3) conduct annual drills in addition to the proposed annual exercises, and (4) add separate sections to emergency planning documents that address the emergency operations center and public notification of basic emergency planning and information in emergency planning zones. A commenter also suggested that the proposed language would permit individuals to evaluate their own performance in the required biennial exercise, rather than have an independent and impartial evaluation.

The emergency planning provisions in 10 CFR part 76 are essentially those of 10 CFR part 70. Adoption of these comments would result in emergency planning requirements similar to those in place at nuclear power plants. The nature of the postulated accidents that

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are considered in emergency planning for nuclear power plants would be substantially different from those that would be involved in emergency planning for the gaseous diffusion plants. The regulatory analysis for the emergency preparedness requirements contained in Part 70 evaluated the risks associated with the release of UF₆ and concluded that offsite emergency preparedness should be based on chemical toxicity from a large UF₆ release. The current part 70 requirements are considered adequate for these facilities, therefore, these additional measures were not adopted.

One commenter concluded that § 76.91, "Emergency Planning," does not provide for any offsite emergency planning except for a minimal notification procedure to offsite response organizations and a request for offsite assistance, and that this omission implies that no offsite consequences will occur. Actually, the rule requires considerable coordination with offsite organizations, including offering opportunities for orientations and participation in exercises. Although there is a small risk of an incident which may require an offsite response, the NRC believes the nature of these incidents is such that State and local governments can be expected to respond in an adequate manner whether or not there are any formal written emergency plans for offsite releases.

Section 76.120 Reporting requirements. This section contains requirements for 1-hour notification, 4-hour notification, 24-hour notification, and for preparation and submission of reports.

One commenter recommended deletion of "general emergency" to make the language of the requirement consistent with that of § 76.91(c). Because there was no intent of including a general emergency class, this correction was made.

Another commenter recommended changing "or" to "and" between paragraphs (c)(1)(ii) and (iii), and between paragraphs (c)(2)(ii) and (iii). This change was adopted as being the intent of the proposed rule and to be consistent with 10 CFR parts 30, 40, and 70.

One commenter recommended changing the language in § 76.120(c)(1)(iii) from "to decay to a level that would allow decontamination" to "to decay prior to decontamination." This change was adopted for consistency with part 70.

The Corporation suggested that § 76.120(c)(2) could be changed to provide that the failure of equipment required by an operational safety

requirement to perform certain functions should be reported to the NRC. The NRC agrees with the intent of the suggestion but will use the technical safety requirement for consistency of terminology. The appropriate changes have been made to the final regulation. The comment also recommended deletion of the requirement for reporting equipment failure in the case of equipment required to restore the facility to a preestablished safe condition. This suggestion was not adopted. The requirement is needed to ensure that the NRC is aware of instances when facility safety during shutdown and restart could be threatened.

The Corporation suggested a modification to § 76.120(c)(3) to reflect that both GDPs have onsite medical facilities that negate the need for reporting radioactive contamination of personnel. This suggestion was not adopted. The purpose of the requirement is to make the NRC aware of any event in which a worker needs medical attention, either onsite or offsite, due to radiological contamination.

The Corporation suggested the deletion of the record or log requirement in § 76.120(d). The NRC maintains telephone event report logs in its database system and written reports submitted on emergency actions carried out in response to an emergency plan activation. There is no health and safety benefit to be gained by the Corporation maintaining an additional log for two years after an event. Therefore, the final regulation has been changed as suggested.

One commenter suggested that the proposed verbal and written reporting requirements should be modified to be consistent with the current part 70 requirements and that the same language should be used. This suggestion was not adopted. The proposed new language only clarifies what is already required by the current wording of 10 CFR 20.2201, 20.2202, 70.50, and 70.52.

Section 76.121 Inspections. This section states that the Corporation shall afford the Commission opportunity for inspection and that office space for Commission inspection personnel must be provided.

No comments were received on this section.

Section 76.131 Violations. This section specifies actions the Commission may take to prevent a violation, such as obtaining a court order, and contains civil penalty provisions.

A commenter asserted that the proposed rules do not include enforcement provisions. The post issuance provisions in § 76.70 pertain to revocation, suspension, or amendment for cause. Revocation of a certificate or approved compliance plan would be an extremely severe sanction and, quite arguably, the most severe possible sanction for the Corporation. In addition, § 76.60 makes 10 CFR Part 21 (Reporting of Defects and Noncompliance) applicable to the gaseous diffusion plants, and § 76.22(d) includes provision for civil penalties for violations of 10 CFR part 21. Section 76.131 pertains to violations and provides for the Commission to seek an injunction or other court order to prevent a violation of the regulations and to seek an order for payment of a civil penalty for violation of Section 206 of the Energy Reorganization Act of 1974 (relating to reporting of defects and noncompliance). The commenter also indicated difficulty in determining what criminal penalties apply when examining § 76.133 and the citations therein. Section 76.133(b) identifies those sections of part 76 for which criminal penalties do not apply. As set forth in Section 223 of the AEA, as amended, the general penalty for such violation, upon conviction, is punishment "by a fine of not more than \$5,000 or by imprisonment for not more than two years, or both." The rule was not changed.

Section 76.133 Criminal penalties. This section specifies criminal sanctions for violations. For purposes of section 223 of the AEA which provides for criminal sanctions, the regulations in 10 CFR part 76 for which criminal penalties apply are issued under sections 161b, or 161i. The sections for which criminal penalties do not apply are listed in § 76.133(b).

The Corporation agreed that criminal sanctions could be imposed for violations of part 76 regulations issued under sections 161b or 161o of the AEA because these sections give the Commission authority to issue regulations to govern the possession and use of special nuclear material. However, the Corporation indicated that part 76 regulations could not be issued under section 161o of the AEA, and therefore, section 161o should be removed as a potential basis for criminal sanctions under § 76.133 and other NRC regulations (e.g., 10 CFR 19.40) made applicable to the Corporation. The Corporation reasoned that the activities regulated in part 76 do not constitute licensed or other activity within the scope of 161o.

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The Commission agrees that 1610 of the AEA applies to licensed and other activities that are not the subjects of the regulations in part 76. Therefore, § 76.133 has been revised by deleting section 1610 as an authority for the issuance of regulations in part 76 and imposition of criminal sanctions under section 223 of the AEA. The Commission does not believe that it is necessary to revise the "Criminal Penalties" sections of other parts that apply to the Corporation because the references to 1610 as one of the non-exclusionary bases for issuance of regulations in the other parts also apply to actions of licensees and other persons engaged in activities within the scope of 1610.

B. Procedural Requirements

As directed by section 1701(c) of the AEA, as amended, the rule contains procedures for the annual certification process. Apart from requiring an annual application for a certificate of compliance and a determination by the Commission, in consultation with EPA, of compliance with the NRC's standards, the legislation does not specify procedures for the certification process. In addition, the amendments to the AEA provide that the requirement for a certificate of compliance is in lieu of any requirement for a license. Thus, the NRC has substantial discretion in determining appropriate procedures for the certification process. By providing for public notice and a written comment period with respect to an application for a certificate of compliance, as well as the opportunity for the Corporation and other interested parties to petition the Commission for review of the decision to grant or deny a certificate or request for approval of a compliance plan, the Commission believes that it is adopting a fair and efficient certification process/procedure.

The procedural requirements for the certification process to implement provisions of the Act and to constitute the Commission's certification process include:

Section 76.21 Certificate required. This section contains the requirement that the gaseous diffusion plants may not be operated without a certificate of compliance or an approved compliance plan.

A comment was received concerning operation of the GDPs between the time the NRC issues the standards and issues a certificate or approves a compliance plan. The Corporation's authority to continue to operate the GDPs under DOE oversight after part 76 becomes effective, but before the NRC completes

the initial certification process, has been clarified.

A commenter stated the belief that the Corporation should not be able to operate the facilities without a certificate of compliance. This view appears to be based on a misunderstanding of the AEA. Section 1403 of the AEA requires that the Corporation lease the facilities for a period of 6 years, which commenced on July 1, 1993 (see also section 1314(e)), but section 1701 also gave the NRC 2 years from October 24, 1992, for establishment of standards under which the NRC would then determine whether to certify compliance with the standards. During the interim period, DOE has oversight responsibility for the GDPs until the NRC establishes its standards and completes the first certification process.

In response to another comment, the rule has been revised to permit receipt of radioactive material under either a certificate or an approved compliance plan.

Section 76.31 Annual application requirement. This section specifies the date by which the annual application must be filed. The initial certification would be based on review of an application submitted by the Corporation. The initial application would contain a complete description of operations, a safety analysis, and other information required to demonstrate compliance with NRC requirements. Subsequent applications could reference previously submitted information. For annual reviews after the initial certification, the Commission would focus on new information and changes from the previous year and public comments. The Commission anticipates that it will perform a complete review, similar to that performed for the initial certification, every 10 years.

The footnote concerning the date for submission of the initial application has been changed in response to a comment from the Corporation to provide at least 6 months for submission of the initial application after the rule becomes effective.

Section 76.33 Application procedures. This section contains filing requirements and specifies the required contents of the application. The rule requires any application which contains restricted data, classified national security information, unclassified controlled nuclear information, safeguards information, or proprietary or other withholdable data to be prepared in such a manner that all such information or data are separated from the information to be made available to the public.

The Corporation stated that the word "identifiable," used in § 76.33(c)(2) to describe areas of noncompliance, was unclear and should be revised to be "identified" as stated in other NRC regulations (e.g., 10 CFR 21.1 and 70.9(b)). They indicated that it is not clear how the NRC would determine whether a particular noncompliance to be addressed in a compliance plan was "identifiable." The NRC agrees that this word is ambiguous, and it has been changed to "identified" in the final rule as stated in 10 CFR 20.1 and 70.9(b).

Several comments were received concerning the environmental aspects of the certification process and existing environmental conditions at the facilities including the presence of contamination due to transuranics and their daughters. The Department of Energy prepared an Environmental Impact Statement for the Portsmouth gaseous diffusion plant in 1977 and an Environmental Assessment of the Paducah facility in 1982. The NRC has reviewed those documents, as well as environmental reports prepared by DOE for both facilities in 1992 and environmental audits prepared by DOE prior to turning operation of the facilities over to the Corporation in 1993. The NRC also conducted extensive site visits. No significant differences in operations, previously evaluated by DOE, were identified that would result in current operations having significantly different environmental effects than those already evaluated in DOE's environmental reviews. In addition, any known quantities of transuranics or their daughters at facilities under the NRC regulatory certification process most likely came from the processing of recycled uranium in the past. The Corporation will be required to provide for adequate protection of public health and safety as a result of operations at the leased facilities, including releases of effluents to the environment as specified in § 76.60(d) that is based on the regulations in 10 CFR part 20. As established by the Act, the NRC will issue a certificate only for the current operations of the facility and will not evaluate preexisting conditions. All preexisting conditions are outside of NRC authority. In consideration of this limited authority, this section was changed to only require submittal of additional information that deviates from DOE-published environmental documents for these facilities. Also, in this regard, the Act requires the Director, as specified in § 76.53, to consult with the Environmental

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Protection Agency (EPA) on applications for certification.

The NRC has reviewed comments concerning decommissioning and existing site environmental contamination. The NRC is currently working with the EPA in establishing standards for the decommissioning of nuclear facilities. These EPA standards will be applied in the decommissioning of these plants.

Several commenters responded to the requirement concerning separation of certain material, such as classified or proprietary material, from the information to be made available to the public. This requirement conforms to other NRC regulations on the separation of submitted information. The special handling of the specified material is required to protect information that could be detrimental to national or facility security and the Corporation's business. In appropriate cases, the Commission has procedures to permit access to the material for individuals who have been properly cleared and are bound by law to protect the information.

The Corporation suggested that the proposed rule be modified in several places to state that the Corporation need not describe procedures for special nuclear material where the function is the responsibility of DOE. The NRC recognizes that the Corporation will not control all activities at the enrichment plant sites, and that DOE will continue to conduct certain activities involving enriched uranium at sites which are outside of NRC jurisdiction. Any interaction between DOE and the Corporation-leased facilities will be carefully monitored by NRC to assure that safety and safeguards requirements are met by the Corporation. However, the suggested rule changes were not adopted because it is inappropriate for the rule to attempt to address DOE activities which fall outside NRC jurisdiction.

Also, in response to a comment, the final rule requires more detailed information about the Corporation's management structure similar to that required by part 70.

Section 76.36 Annual renewal. The Corporation requested a change in format regarding contents of applications for the purpose of increased clarity regarding the precise scope of the initial application and of renewal applications. Included in the proposed restructuring was revision of proposed § 76.35 pertaining to contents of applications so as to limit its scope to the contents of the initial application. The Corporation also recommended the addition of a new § 76.36 so as to set

forth the precise content of the annual resubmittal.

The NRC agrees that revisions to specifically address the renewal procedures would add clarity to the prescribed content of the initial and renewal applications. As a result, the final rule adds a new Section 76.36 to address required contents for annual renewal applications and identifies the information that must be submitted for annual review following the initial certification action. This new section clarifies and confirms that the Corporation may, as part of its application for renewal, either submit the information specified in § 76.35 pertaining to the initial application or rely upon the application(s) upon which the existing certificate is based and identify any pertinent changes or proposed changes as specified in § 76.36(c)(2). The provision permitting incorporation of previous submissions by clear and specific reference has been moved from proposed § 76.33(f) to § 76.36(b).

Section 76.37 **Federal Register** notice. This section describes the public notice on a filing of an application, provides an opportunity for public comment, and indicates the date of any public meeting.

Ohio Citizens for Responsible Energy (OCRE) requested that the Commission provide at least an 80-day period for public comment on the initial application for a certificate and for complete review of renewal applications that is intended every 10 years. OCRE views the proposed 30-day period as too brief for learning through publication in the **Federal Register** of the filing of an application and to respond to such a complex matter.

Another commenter, the Central Mid-West Interstate Low-Level Radioactive Waste Commission, recommended that the Commission provide for at least a 60-day period for public comment on an application for initial issuance or renewal of a certificate.

Section 76.37 does not specify the time period which will be afforded for public comment on an application. However, the Commission has indicated that it plans to provide at least a 30-day comment period (February 11, 1994; 59 FR 6797). In light of the comments received, the Commission has determined, as a matter of policy, that it intends to provide a comment period of at least 45 days. However, the Commission cannot assure that any longer public comment period will be provided in light of the need for an expeditious determination of the application on an annual basis, including NRC staff review of the

application and public comments, preparation and issuance of the Director's decision, and consideration of petitions for review by the Commission.

The Commission notes that it has provided for the annual filing of an application by a specific date and that it will promptly make a copy of the application available in local public document rooms near the gaseous diffusion plants. These aspects of the certification process should enhance the ability of the public to provide comment on the application.

Section 76.39 **Public meeting**. This section describes the procedures for conducting a public meeting on applications at the discretion of the Director, Office of Nuclear Material Safety and Safeguards (NMSS), NRC. A public meeting will be held on the initial certification application.

Ohio Citizens for Responsible Energy (OCRE) requested that the regulations require a public meeting on the initial certification process and for the complete review that the NRC anticipates performing every 10 years.

The final rule, as did the proposed rule, provides that a public meeting will be held if the Director, at his or her discretion, determines that a meeting is in the public interest with respect to a decision on the application. The NRC has already indicated, as a matter of policy, that a public meeting will be held on the initial certification application. The Commission continues to be committed to holding such a meeting. The scope of the Commission's review and public expression of interest in a public meeting will be important factors in the Director's decision on whether a meeting on any certificate renewal is in the public interest.

However, it is not clear that a public meeting will be necessary on any annual renewals. Commenters on an application may request a public meeting on annual renewals. The Director, NMSS, will consider these comments in making a determination of whether a public meeting is in the public interest.

OCRE also requested that the NRC provide persons whose interests may be affected by operation of the facilities with the opportunity for a formal adjudication to contest a certification and ensure correction of past problems.

The Commission has not made provision for a formal adjudicatory hearing on a certification decision whenever requested by a person whose interests are adversely affected. Public notice, opportunity for written comment, and opportunity to petition the Commission regarding a Director's decision should provide a fair and

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efficient procedural process for public participation in the certification decision. It must be recognized that Congress explicitly provided for a certification process in lieu of licensing requirements and did not specify any particular procedures for the certification process. However, in addition to the specific procedures which the Commission is providing, the Commission has also made clear its discretion to adopt by order further procedures that it determines would serve the purpose of the Commission's review of the Director's decision (§§ 76.62(c) and 76.64(c)).

Section 76.41 Record underlying decisions. This section specifies that any decision will be based on information in the record and that significant information on any proceeding, with limited exceptions, will be part of the public docket. This is not intended to constitute a requirement of adjudication on the record after opportunity for agency hearing under the Administrative Procedure Act.

No comments were received on this section.

Section 76.43 Annual date for decision. This section describes the timing of the annual decision on the application by the Director, NMSS, to be made within 6 months of receipt of the application.

No comments were received on this section.

Section 76.45 Application for amendment of certificate. This section states the procedures to be followed by the Corporation in applying for an amendment of a certificate before the established date of the next application for a certificate.

DOE commented that applications for amendment should be submitted by the Corporation under oath or affirmation. The Commission has included this change in the final rule.

Section 76.51 Conditions of certification. This section states that the Corporation shall comply with all requirements set forth and referenced in part 76, or in a certificate of compliance, or in an approved compliance plan.

In one of its comments, the Corporation requested that this section be revised to permit the Corporation to modify its programs for material control and accounting, physical protection, protection of special nuclear material in transit, security, safeguards, and emergency response so long as the changes do not decrease the effectiveness of the applicable plans. This permission is already granted in § 76.68 of the proposed rule. That section permits the Corporation to make

changes to the plant or the plant's operations without prior Commission approval provided certain conditions are met.

In another comment, the Corporation suggested various retention periods for records of changes to material control and accounting plans made without prior Commission approval and for records of changes to security and safeguards plans made without prior Commission approval. Requirements for retention of these kinds of records are addressed in the proposed § 76.68(d). The record retention period for procedural-like changes is standardized at two years and is shorter than the periods proposed by the Corporation. Records of changes to the plant must be retained for the duration of the lease.

The Corporation comment did not explicitly address retention of records of changes to the plant. The required period is deemed justified because it is important to both safety and safeguards to have available records describing the current and past plant configurations.

A final comment from the Corporation on this section suggested a schedule for informing the Commission of various kinds of changes made without prior Commission approval. The submission requirement is addressed in § 76.68(b). The time allowed has been extended from 90 days in the proposed rule to annually in the final rule. The annual submission date allows more time for submission than any of the Corporation's suggestions. The annual submission date could coincide with the annual application and is justified by the continuing presence of an onsite NRC resident inspector who would be aware of the changes.

Section 76.53 Consultation with Environmental Protection Agency (EPA). This section states that the Commission will consult with the EPA in making the annual decision on the application for a certificate, including the provisions of any compliance plan, and solicit their written comments on the application.

No comments were received on this section.

Section 76.55 Timely renewal. This section states that timely filing of an application for a certificate of compliance will maintain in effect any existing certification or approved compliance plan effective until issuance of a final decision on the application. This addresses the unlikely situation in which the Commission is unable to make the required annual determination regarding an application for a certificate of compliance despite timely filing of the application. In this case, the Commission will deem its prior

determination regarding compliance effective until final resolution of the subsequent application and will advise Congress annually as required under Section 1701(b) of the AEA.

The Corporation requested that the provision on timely renewal be modified by providing that an existing certificate of compliance or approved compliance plan not expire until the annual application for a certificate of compliance "has been finally determined by the Commission" rather than at the time of the Director's determination of the application. The Corporation also requested that the condition of timely filing of "a sufficient annual application" be changed to timely filing of "an annual application in proper form."

The Commission agrees that an existing certificate or approved compliance plan should not expire until a final determination is made by the agency on the renewal application for the certificate. The final rule has been revised accordingly. The Commission intends that a certification process will normally be completed on an annual basis in the absence of extraordinary or unusual circumstances preventing the completion of the process.

The final rule has been revised to clarify that the Corporation will not be penalized if NRC does not complete the certification process expeditiously. However, the Corporation must timely file a sufficient application that addresses all the elements in § 76.36 for the Commission's determination. NRC staff questions regarding information provided in the application will not cause an application to be judged insufficient.

Section 76.60 Regulatory requirements which apply. This section specifies the requirements which the NRC will apply in certifying the Corporation's operation of the gaseous diffusion plants.

One commenter suggested that in several places the phrase "shall demonstrate compliance" should be changed to "shall comply." The NRC agrees with this comment and has changed the final regulation.

The Corporation requested that the rule be changed to allow two years to convert administrative and procedural elements of its radiation protection program to meet the standards for protection against radiation contained in 10 CFR part 20. DOE commented that the implementation of part 20 requirements should be based upon a schedule that achieves implementation in a timely, cost-effective manner. Although the Corporation agreed that the dose limits should become

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immediately effective upon receipt of the certification or an approved compliance plan, they provided no information on how they would be capable of implementing the dose limits without procedures or administrative controls in place. The requested two-year extension could mean that the elements of part 20 would not be in place until late 1996. The Commission recognizes that although there will be significant effort required to implement part 20, sufficient time is available for the Corporation to begin to implement these requirements. If the Corporation is unable to complete development of the appropriate procedures and administrative controls, including training before the date of the NMSS Director's decision, any remaining activities should be presented as a part of a compliance plan. In addition, the Corporation expressed concern with obtaining National Voluntary Laboratory Accreditation Program (NVLAP) approvals. Because NVLAP testing occurs every 3 months and the facilities possess Department of Energy Laboratory Accreditation Program (DOELAP) certification, there should be no difficulty in obtaining NVLAP accreditation before the NMSS Director's decision.

Another comment noted that until the initial certification, DOE has the regulatory oversight authority over the gaseous diffusion plants (GDPs) and, therefore, the implementation date for 10 CFR parts 19 and 21 should coincide with issuance of the initial certificate, rather than earlier as in the proposed regulation. The NRC agrees with this comment, and the regulation has been so changed.

Louisiana Energy Services (LES) raised the issue of requiring, through part 76, that the Corporation maintain liability insurance comparable to that required by 10 CFR part 140 for uranium enrichment facilities. The provision cited by LES, 10 CFR 140.13b, is based on section 193 of the AEA. This section specifically requires that the NRC require, as a condition of licensing any enrichment facility, that liability insurance be maintained by the licensee sufficient to cover liability arising from operations at the licensed facility. The legislation establishing the Corporation specifically provides that Price-Anderson indemnification will be provided by the Department of Energy under Section 170d of the Atomic Energy Act of 1954, as amended (AEA) for the gaseous diffusion facilities leased to the Corporation by the DOE. Further, Section 170a of the AEA provides that NRC may require financial protection for facilities licensed under sections 53,

63, 81, 103, 104, and 185. The certification process does not constitute issuance of a license within any of these sections of the AEA. Accordingly, it is the Commission's conclusion that requiring additional NRC mandated liability insurance for the Corporation's operations is neither appropriate nor necessary.

One commenter recommended the inclusion of the reference to 10 CFR part 95 that covers security and safeguarding information in this section for consistency as other regulations which apply are listed. The NRC agrees with this comment and the final regulation has been so changed.

Several commenters expressed concerns about the applicability of Environmental Protection Agency regulations in 40 CFR parts 61 and 190, noting that although 10 CFR part 20 incorporates 40 CFR part 190, 10 CFR part 76 did not explicitly reference 40 CFR part 190. The NRC notes that because the Corporation is required to comply with 10 CFR part 20, it must also comply with 40 CFR part 190, and 40 CFR part 61, Subpart H, and that explicit references in part 76 are not necessary.

One commenter noted that certain of the existing regulations referenced by the proposed rule provided for the imposition of civil penalties but contended that authority for the NRC to issue a civil penalty is not included in the Energy Policy Act. The NRC agrees with the comment and the final rule has been revised to delete the civil penalty provisions.

Section 76.62 Issuance of certificate and/or approval of compliance plan. This section specifies that the Director, NMSS, will issue a written decision on the Corporation's application and states that the Corporation or affected members of the public who have provided comments in the proceeding may seek the Commission's review of the Director's decision.

The Corporation recommended that this section be revised to clarify that a certificate and a compliance plan are not exclusive of the issuance of the other. They also expressed concern that the proposed language might be interpreted to require the Director to withhold the certificate of compliance in its entirety if there are any outstanding areas of noncompliance. They requested that the language of the proposed rule be modified to explicitly state that a certificate of compliance would be issued for all areas of full compliance and a compliance plan for areas of current noncompliance. The Commission agrees that it may issue a certificate of compliance covering those

areas where the Corporation is in compliance with applicable requirements and the Commission may also approve concurrently a compliance plan for areas of noncompliance. This section is modified to clarify this intent.

The Corporation requested modification of proposed § 76.62(c) to provide that petitions for the Commission's review of a Director's decision to issue a certificate and/or approve a compliance plan "shall be limited to matters raised in the petitioner's written or verbal comments." The Commission declines to limit petitioners for Commission review to matters raised in that petitioner's previous written or verbal comments. A Director's decision on a certificate or proposed compliance plan may respond to issues raised by other commenters or include provisions that a commenter did not anticipate. For these reasons, those persons whose interests may be affected and who submitted written or verbal comment on an application will be permitted to seek Commission review of the Director's decision.

One commenter, OCRE, felt that the 15-day period (from the date of **Federal Register** Notice) for filing a petition for Commission review of a Director's decision to grant or deny a certificate, or approve or disapprove a compliance plan, was too short. OCRE requested that this 15-day period be extended to at least 25 days. It stated that some commenters, particularly individuals and public interest groups that depend upon libraries for access to the **Federal Register**, may not learn of the Director's decision within 15 days unless the Director's decision is provided to all commenters on the application for a certificate.

The Corporation stated that the 15-day period for filing of a petition for review of a Director's decision to deny a certificate or not approve a compliance plan was too short and requested at least 30 days to file such a petition. The Corporation also recommended that the rules provide that a Commission decision denying an application for a certificate or disapproving a compliance plan must state that it does not become effective until at least 10 days after the date of the decision. In support of these recommendations, the Corporation stated that a denial could have a significant impact on it and may have potential implications for national and public policy because the gaseous diffusion plants supply 40 percent of the world market and 90 percent of the domestic market for enriched uranium

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and are currently the sole domestic source of enrichment services.

Both the Corporation and OCRE felt that the 10-day period from the date of filing a petition for review for responding to a petition for review was too short. The Corporation requested that this 10-day period for filing responses to a petition for review be extended to 30 days because of the burden and prejudice that might occur if the Corporation were faced with multiple petitions.

OCRE requested that this 10-day period for responding to a petition be lengthened to at least 20 days. To ensure adequate notice to interested commenters, OCRE requested not only service of the Director's decision on commenters but also a mechanism for ensuring that commenters could receive timely notice of a petition for review. OCRE observed that the cost of requiring a petitioner to serve all commenters could be prohibitive and suggested a remedy such as a telephone information line with recorded information on the case or a computerized bulletin board system.

The Commission recognizes that the time periods for filing of a petition for Commission review and responding to a petition for review are relatively short. The Commission's flexibility in the timing of the certification process is limited, as noted above, because of the need for an expeditious determination of the application on an annual basis, including staff review of the application and public comments, preparation and issuance of the NMSS Director's decision, and consideration of petitions for review by the Commission.

The Commission will promptly make copies of an application for a certificate or approval of a compliance plan available in local public document rooms at or near the gaseous diffusion plants and will issue a press release at the time the Director's decision is issued. The Commission also intends to make promptly available copies of all **Federal Register** notices relating to the certification process, as well as petitions for review, and responses to petitions for review at those locations. In addition, the NRC staff will examine the feasibility of establishing a computer bulletin board to provide information on the application's status.

For these reasons, the Commission has not altered the time periods for filing of petitions for review or responses thereto. However, the Commission has added § 76.74 to the final rule that clarifies the computation of designated time periods and confirms the Commission's ability to extend or shorten time periods for action for good

cause. Therefore, the Commission may be able to provide some extension of the period for filing of petitions and responses if time permits during the period of a particular certification process.

The Commission declines to specify by regulation that a decision denying an application for a certificate or disapproving a compliance plan must state that it does not become effective until at least 10 days after the date of the decision. The Commission has determined that binding itself to such a delay would be inappropriate in emergency circumstances.

Section 76.64 Denial of certificate or compliance plan. This section states that the Director, NMSS, may deny the Corporation's application and that the denial will be noticed in the **Federal Register**. This section also provides an opportunity for the Corporation to submit a compliance plan before the denial is issued. It also states that the Corporation or affected members of the public who have provided comments on the application may seek the Commission's review of the Director's decision.

In response to a comment, this section is revised to clarify that the compliance plan is a DOE document.

Section 76.66 Expiration and termination of certificate. The Corporation requested that the NRC add a new section to the final rule which would address expiration and termination of certificates.

The Commission agrees that these provisions are useful. Thus, a § 76.66 has been added to the final rule. Paragraph (a) clarifies that "except as provided in § 76.55 [timely renewal], a certificate expires at the end of the day, in the month and year stated." Paragraph (b) adds a requirement of prompt notice to the Commission when the Corporation decides to terminate operation of either of the GDPs and other authorized activities under the certificate. Paragraph (c) clarifies that the Corporation must terminate operations on or before the expiration date in the existing certificate if it does not submit an application for renewal of the certificate.

Section 76.68 Plant changes. This section describes plant or operational changes by the Corporation permitted without prior Commission approval. Documentation of these revisions must be submitted to the NRC. To make other changes would require Commission approval and would require the Corporation to apply for an amendment of the certificate under § 76.45.

Several comments were received concerning this section. The

Commonwealth of Kentucky commented that the Corporation should not be allowed to make changes without modification of their certificate. Another commenter stated that the section should be preserved as written and incorporated into 10 CFR Part 70. The Corporation commented that the proposed section is overly restrictive and should be closely modeled after 10 CFR 50.59. The Department of Energy (DOE) recommended changes that would make it consistent with current DOE Orders.

As written, § 76.68 permits changes similar to those permitted under 10 CFR 50.59 for reactors and provides flexibility that is beyond that currently provided for in 10 CFR part 70. Because these plants will not have technical specifications as referenced in 10 CFR 50.59, the detailed criteria for evaluation of changes permitted without prior Commission approval are needed in § 76.68. The Commission does not believe the evaluation provisions are overly restrictive as suggested by the Corporation and the evaluation provisions are retained.

Comments were also received concerning the requirement that reports describing changes made under this section be submitted within 90 days of their adoption. The final rule has been changed to conform with 10 CFR 50.59 and thus requires that the information on changes be submitted annually or at shorter intervals as specified in the certificate.

The Commission believes that the clarified final rule will permit changes that do not decrease safety and still provide the Corporation flexibility in the operation of the facilities. The Commission has not deleted this section as requested by one commenter because the procedures contained in this section ensure that those changes which are permitted will not be in conflict with any certification requirements.

Still another comment on § 76.68 requested that the term "unreviewed safety question" be defined. The NRC has no objection to this definition and has added a definition similar to the usage of the term in 10 CFR 50.59.

A comment from DOE was also adopted that requires the Corporation to evaluate any as-found conditions that do not agree with the plant's programs, plans, policies, and operations in accordance with this section. This comment was adopted to ensure that any exceptions to what is assumed or understood are evaluated.

Section 76.70 Post-issuance. This section specifies procedures for amendment, revocation, suspension, or amendment for cause of the certificate.

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The proposed rule provided that the Commission would provide "the Corporation and other interested persons with an opportunity to provide written views to the Commission" in connection with a proceeding to amend, revoke, or suspend a certificate of compliance or compliance plan. The proposed rule also provided that the Commission "may adopt by order further procedures for a hearing of the issues before making a final enforcement decision."

In its comments, the Corporation requested that participation in these enforcement actions be limited to persons whose interests may be "adversely affected" by the proposed enforcement action. The Corporation indicates that this change would make public participation rights more consistent with those applicable to similar enforcement proceedings for NRC licensees. In particular, the Corporation seeks to ensure that the NRC would preclude participation in an NRC enforcement action by persons seeking more stringent enforcement action than is proposed by the Commission.

The Commission does not believe it is necessary to limit public participation to those who are adversely affected by the order or the proceeding. Such a limitation could necessitate substantial or protracted consideration of whether a person submitting written comments on a proposed enforcement action was adversely affected. This would be inefficient and contrary to the intent of providing for an expeditious, informal resolution of the enforcement action unless such a procedure is inadequate for determination of the issues. Informal enforcement procedures that would foster expeditious resolutions are desirable, wherever sufficient, because a certification process which also affords opportunities for public participation will be occurring on an annual basis.

If the Commission determines that more extensive adjudicatory procedures are necessary in a particular case, it may order use of further procedures, such as those in 10 CFR part 2, subpart G or subpart L. In these cases, intervention would depend on the showing of how a petitioner's interest is affected in accordance with the adopted procedures.

However, the general procedural description of post-issuance enforcement action in the proposed rule does not foreclose the Commission's ability to limit the scope of a proceeding or define the issues for determination in any enforcement action. For clarity, § 76.70 has been revised to specify the

procedures that would be followed in an enforcement action in more detail.

First, the final rule makes explicit that the Commission may institute a proceeding to modify, suspend, or revoke a certificate or approved compliance plan, or to take other action as appropriate by service of an order on the Corporation that specifies: The proposed action; the alleged violations, or potentially hazardous conditions, or other facts deemed to be sufficient ground for the proposed action; a reasonable period for submission of a written response to the order and for submission of written views by interested persons within a reasonable period after publication of the order in the *Federal Register*; issues for resolution if the proposed action is contested; and the effective date of the order. If the order is made immediately effective pending further order, the order must include a statement of reasons for making the proposed action immediately effective.

Second, the final rule clarifies, *inter alia*, that the Corporation may promptly request that the Commission set aside the effectiveness of an immediately effective order, provided that the request specifically states the reason why the order is not based on adequate evidence and is accompanied by affidavits or evidence upon which the Corporation relies. The NRC shall respond within 5 days of the receipt of the motion.

These details of the procedural process are similar to those which apply to issuance of orders to licensees under 10 CFR part 2, subpart B. However, they preserve the provision for informal procedures for resolution of the action in the absence of a determination that more extensive procedures are appropriate.

In addition, the final rule adopts a suggestion from DOE that information submitted under this section by the Corporation be signed under oath or affirmation.

Section 76.72 Miscellaneous procedural matters. This section addresses procedures for filing petitions, ruling on matters of procedure, and communication between Commission and NRC staff. Additional guidance regarding the filing and service of petitions for review of the NMSS Director's decision and responses to these petitions may be included in the Director's decision or by order of the Commission.

Except for proceedings under 10 CFR part 2, subpart G, for imposition of a civil penalty resulting from violations of section 206 of the Energy Reorganization Act of 1974, the

Commission is not imposing restrictions on *ex parte* communications or on the ability of the NRC staff and the Commission to communicate with one another at any stage of this regulatory process. The NRC staff would not participate in a review of the Director's decision as a party but would serve as an advisor to the Commission. Congress has not required formal adjudication. The Commission believes that informal processing without such formal restrictions on communication is best suited for resolution of annual applications for a certificate.

Section 76.74 Computation of extension of time. This section has been added to the final rule to specify the duration of designated time periods and confirm the Commission's ability to extend or shorten time periods for action for good cause and specifies that additional time would be granted in the event that a required date falls on a Saturday, Sunday or legal holiday.

C. Technical Safety Requirements

The major technical safety requirements are found in the following sections:

Section 76.35 Contents of initial applications. This section specifies that applications must include a safety analysis report, a compliance status report which includes environmental and effluent monitoring data, a quality assurance program description, a description of the use of radioactive material, a description of the training program, a nuclear material control and accounting plan, a physical protection plan for special nuclear material in transit, a plant physical security plan, an emergency plan, a plan for security facility approval and protection of classified information and hardware, a description of the Corporation's response necessary to implement the International Atomic Energy Agency safeguards agreement, and a description of the waste treatment and management program.

The Corporation requested a change in format regarding contents of applications for the purpose of increased clarity regarding the precise scope of the initial application and of renewal applications. Included in the proposed restructuring was revision of proposed § 76.35 pertaining to contents of application so as to limit its scope to the contents of the initial application. The Corporation also recommended the addition of a new § 76.36 that would present the precise content of the annual resubmittal.

The NRC agrees that the revised format will add clarity to the prescribed content of the initial and renewal

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applications. As a result of the restructuring, the final rule makes § 76.35 applicable to initial applications and adds a new § 76.36 applicable to annual renewal.

The Corporation also recommended an application procedure which would generally follow the guidance of NRC Regulatory Guide 3.52. These proposed changes were based on an application which would contain a "Part I" comprised of binding certificate "conditions" and a "Part II" containing a nonbinding safety demonstration. This restructuring was not adopted. This decision is based on a recent review of the Commission's current licensing and oversight programs for fuel cycle plants¹ that indicates the "Part I/II" approach will probably be changed and that safety analysis reports will be required. The Corporation, in its comments, identified the "Part II" safety demonstration to be functionally equivalent to the safety analysis report. While this is generally true, with respect to technical content, the NRC believes that safety analysis reports are preferable because they provide more rigorous, binding documentation of the basis for safe operation of a plant. Changes to the safety analysis report would be permitted only in accordance with § 76.68.

In publishing the draft 10 CFR part 76, the Commission specifically requested comments on the appropriateness of requiring the Corporation to provide financial assurance for the costs associated with decontamination and decommissioning of the gaseous diffusion plants. Comments were received favoring both retention and deletion of a financial assurance requirement. The Corporation commented that DOE was responsible for decontamination and decommissioning of the gaseous diffusion plants under the AEA and that the financial assurance requirements should not apply to the Corporation. DOE, on the other hand, noted that it is only responsible for decontamination and decommissioning of pre-existing conditions under the AEA and that the Corporation will remain responsible for other costs associated with decontamination and decommissioning, including the costs associated with disposal of wastes generated during Corporation operation of the GDPs.

The NRC has determined that the Corporation does have some limited financial responsibility for decontamination and decommissioning activities. The Corporation has

acknowledged in its comments that, under its lease with DOE, there is at least one area where it remains responsible for the costs of decommissioning. Specifically, the Corporation has acknowledged that it is responsible for any increased costs for DOE decontamination and decommissioning of the facilities that arise from removal by the Corporation of capital improvements the Corporation makes at the facilities. In addition, the terms of the DOE/Corporation lease provide that the Corporation is to remain financially responsible, even after return of the GDPs to DOE, for the ultimate treatment and disposal of wastes generated by the Corporation. Nevertheless, the NRC has determined that the language in the draft 10 CFR part 76 requiring financial assurance from the Corporation was written to apply to a broader scope of decontamination and decommissioning activities than are the Corporation's responsibility. Accordingly, the final rule has been revised to require that the Corporation provide financial assurance for only those aspects of the decontamination and decommissioning costs which are their responsibility.

Two commenters asked that the Corporation be required to demonstrate compliance with the applicable provisions of 10 CFR Part 61 which deal with waste classification and waste disposal because these requirements are essential for the proper handling and disposal of all wastes at the GDPs. Waste classification is covered under 10 CFR part 20, subpart K; therefore, an additional reference to 10 CFR part 61 is not needed.

One commenter suggested that a specific license be required if the Corporation proposes to treat radioactive waste at one plant that was received from the other plant and that the Corporation be required to obtain approvals for the treatment from the Central Midwest Interstate Low-Level Radioactive Waste Commission. Plans for treatment of any radioactive waste stream by the Corporation are a required part of the initial application for certification under proposed § 76.35(k). The certification process, therefore, will include consideration of the waste stream issue. Under Section 1701 (c)(3) of the AEA, the certification process is in lieu of any other requirement for a license for the gaseous diffusion plants leased by the Corporation from the DOE. Accordingly, no NRC issued specific license addressing the radioactive waste streams at the DOE gaseous diffusion plants being leased to the Corporation is required.

DOE suggested that the rule specifically prohibit the Corporation from transporting special nuclear material of moderate strategic significance (Category II material) or formula quantities of special nuclear material (Category I material). These activities are not contemplated, and this prohibition has been included in the rule.

One commenter suggested that the rule include the requirement for semiannual reporting of effluents as contained in the Corporation proposal. Although semiannual reporting is a requirement in 10 CFR part 70, this recommendation was not adopted. Semiannual reporting is intended for licensees who hold multi-year licenses. The Corporation will be required to report its annual effluent with the certification application every year. This is adequate for assessment purposes. There appears to be no additional benefit in receiving the information on a semiannual basis.

Section 76.85 Assessment of accidents. This section contains the requirement for performance of a safety analysis of the potential for releases of radioactive material from accidents.

Specifically, the rule requires that a safety analysis of the site activities be performed to evaluate the potential for releases of radiological material from the existing plants. The analysis should evaluate expected releases from a reasonable spectrum of postulated accident scenarios which may occur in the gaseous diffusion plants, taking into account existing systems in operation, including procedures, that are intended to mitigate the consequence of any release. These potential releases, together with operational practices and site characteristics, including meteorology, are to be used to evaluate the potential for onsite and offsite radiological consequences.

The Corporation must provide a level of protection against accidents during plant operations sufficient to provide adequate protection of the public health and safety. In assessing the level of protection provided by the Corporation, the NRC will consider both the total radiation dose to the whole body and the intake of soluble uranium for an individual at the site boundary.

Several comments were received concerning the level of protection against accidents during plant operations sufficient to provide adequate protection of public health and safety. The Commission specifically requested comments on the use of safety objectives, including suggested limiting values with supporting rationale, and whether or not they should be included

¹ Proposed Method for Regulating Major Materials Licensees, NUREG-1324.

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as part of the rule. The Environmental Protection Agency stated that the EPA Protective Guides (1–5 rem) should be used rather than the criteria discussed in the proposed rule and that the values should be specified in the regulation. Several other commenters agreed with this approach. Another commenter stated that the final standards for accident dose assessment should be applied equally to all enrichment facilities. The Corporation objected to the use of any limits in the rule or its accompanying statements to determine the adequacy of accident analysis results and indicated that it is well beyond current regulatory practice. DOE suggested addressing chemically toxic material as well.

The Commission has decided not to include numerical accident limits in the final rule. The NRC believes that to include a specific numerical limit in the regulation could be unduly restrictive, considering that the plants have already been designed and sited and the uncertainty of health effects for uranium intakes. The NRC staff contracted with Pacific Northwest Laboratory² to review the available literature on uranium toxicity and the results of this review suggested that the best estimate of a toxicity threshold would be an intake of 30 milligrams of uranium. In assessing the adequacy of protection of the public health and safety from potential accidents, the NRC will consider whether the potential consequences of a reasonable spectrum of postulated accident scenarios exceed .25 Sv (25 rems), or uranium intakes of 30 milligrams, taking into account the uncertainties associated with modeling and estimating such consequences.

In considering intakes of soluble uranium, the Commission recognizes that the chemical toxicity of uranium could be the limiting factor in the accident analysis under this section. The Commission's intended use of chemical toxicity considerations in part 76 is consistent with its practice elsewhere (e.g., 10 CFR 20.1201(e)), and prevents any potential regulatory gap in public protection against toxic effects of soluble uranium.

The EPA guidelines of 1–5 rem for offsite protection action recommendations are appropriate for emergency planning purposes but are not appropriate for accident analysis.

The final rule requires that a safety analysis of the site activities be performed to evaluate the potential for releases of radiological material from the existing plants. The analysis should

evaluate releases from a reasonable spectrum of postulated accident scenarios which may occur in the gaseous diffusion plants, taking into account the existing systems in operation, including procedures, that are intended to mitigate the consequence of any release. These potential releases, together with operational practices and site characteristics, including meteorology, are to be used to evaluate the potential onsite and offsite radiological consequences. Technical safety requirements will be established to ensure that releases are unlikely and, in any case, if releases occur they will be within an acceptable range.

One commenter stated that the NRC would have no mechanism for enforcement of numerical limits if they are not included in the standards. The certificate issued by the NRC will include limiting conditions for operation that will be enforceable.

LES commented that specific natural phenomena and specific accident dose limits should be applied equally to all enrichment facilities. The apparent reference for this suggestion was the current NRC review of their license application for a new uranium enrichment facility. Another commenter expressed concern that the Paducah plant resides in a geological rift zone. The NRC will not include specific reference design assessment values for the existing Corporation facilities, since these facilities are already sited, but will evaluate consequences of potential accidents resulting from natural phenomena during review of the Corporation's safety analysis.

A comment was also received concerning the discussion in the statement of considerations on the development of guidance on an integrated safety analysis (ISA) and applicability to the GDPs. The final rule does not include requirements for an ISA because its incorporation into the regulatory process is still under NRC staff review.

Section 76.87 Technical safety requirements. This section specifies that safety requirements must be included in the application. Safety topics to be considered are those mainly associated with plant operations, management controls, and confinement of radioactive material.

The rule requires the application to include technical safety requirements derived from the analyses and evaluations in the safety analysis report. These safety requirements would include safety limits and limiting control settings within which process variables would be maintained for

adequate control to guard against an uncontrolled release of radioactivity. The safety requirements would also include limiting conditions for operation, surveillance requirements, design features, and administrative controls. The requirements are similar to operating technical specifications or license conditions applied to licensed nuclear facilities to assure that operations are controlled as described in the safety analysis report.

The Corporation requested that the use of the term "technical safety requirements" (TSRs) be changed to "operational safety requirements" (OSRs) as the GDPs have historically operated under OSRs which are similar to TSRs. The Corporation also suggested a change from "Safety Analysis Report" (SAR) to "Safety Demonstration" (SD) as being "functionally equivalent." The Commission prefers the term "technical safety requirements" because the requirements may cover subjects broader than operations, and because existing Corporation operational requirements include matters beyond NRC jurisdiction. Similarly, the term "safety analysis report" is preferred because it is a more generally accepted term. Therefore, no change was made to the rule.

The Corporation also recommended deletion of the list of the 14 safety topics that are to be addressed as being more appropriate for identifying accidents for analysis. DOE referenced the list of safety topics as those which must be addressed under assessment of accidents. The list of topics to be addressed in the technical safety requirements is included to ensure that operations are controlled within certain safe parameters under normal, off-normal, and accident conditions. Therefore, the list has been retained, but the rule has been revised to clarify that the Corporation must describe the procedures and/or equipment that reflect consideration of each of the listed safety topics.

Section 76.93 Quality assurance. This section requires a quality assurance program. The Commission recognizes that the GDPs are fuel cycle facilities and that the appropriate quality assurance (QA) for GDPs is not the same as for reactors. The GDPs are existing plants designed and constructed around 40 years ago. The QA requirements for the GDPs will be based on applying the applicable requirements of ASME NQA-1-1989, "Quality Assurance Program Requirements for Nuclear Facilities," in a graded approach and to an extent that is commensurate with the importance to safety.

²Fisher, D. R. et al., "Uranium Hexafluoride Public Risk," PNL-10065, August 1994.

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A Corporation comment agreed with use of ASME NQA-1 as a basis for a quality assurance program (§ 76.93), but expressed concern that implementation problems could result if NQA-1 is applied in a manner similar to reactors. The Corporation suggested that the rule should allow use of equivalent alternatives to NQA-1. If found adequate under review, the NRC could approve use of an equivalent alternative to NQA-1, and the final rule has been revised accordingly.

Section 76.95 Training. This section requires a description of the training program that will be provided to personnel to enable them to perform the functions of their jobs, including information on the positions for which training will be provided, to assure that personnel are qualified to operate and maintain the plants safely and in compliance with regulatory requirements.

The Corporation strongly recommended that the performance-based training concept be deleted from the proposed rule and instead require the Corporation to "establish, implement and maintain a training program to assure that personnel are adequately trained to perform their nuclear-safety related functions." They indicated that development of performance-based training would go well beyond both the existing requirements of 10 CFR part 70 and current practices at the GDPs. They further commented that it would subject the Corporation to the very costly and difficult task of fully implementing a performance-based training program by the time that it submits its initial application for a certificate. The Corporation believes the proposed section will require the GDPs "to adopt the full performance-based training concept embodied in part 50" which uses the Institute of Nuclear Power Operations (INPO) training methodologies for commercial power reactor licensees. The Corporation estimates it will cost about \$8 million to fully develop and implement a training program for selected tasks affecting nuclear safety or radiological controls.

The Commission believes that the performance-based training requirement should be retained. The Corporation's main concern is that it might be expected to establish training programs of similar complexity to those of power reactors, which is not the case. The final rule allows flexibility, and the Commission believes that the existing training program inherited by the Corporation can be adapted to comply with the rule at reasonable cost.

The Commission must be assured that adequate training is provided and that those persons performing operations that could have an effect on health and safety have mastery of their operating tasks. Therefore, the final rule was not changed. The Commission believes that a training program that includes the concepts of performance-based training provides that assurance. The Commission also notes that a requirement for performance-based training has been established for nuclear power reactors and has been determined to be cost-effective for such facilities. The Commission does not see any reason to conclude that this will not also be the case for the enrichment plants.

D. Incorporation of Existing Regulations

Portions of existing Commission regulations are applicable to certification of the Corporation's operation of the gaseous diffusion plants and cross referenced (§ 76.60).

Requirements for notices, instructions, and reports to workers are contained in 10 CFR part 19, "Notices, Instructions, and Reports To Workers: Inspection and Investigations." Part 19 specifies the requirements for notices, instructions, and reports by the Corporation to individuals participating in gaseous diffusion activities. It also sets forth the rights and responsibilities of the Commission and individuals during interviews on any matter within the Commission's jurisdiction.

Requirements for protection against ionizing radiation are contained in 10 CFR part 20, "Standards For Protection Against Radiation." Part 20 specifies the requirements to control the receipt, possession, use, storage, transfer, and disposal of byproduct, source, and special nuclear material by the Corporation in such a manner that the total dose to an individual (including doses resulting from radioactive material and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed by the NRC for normal operating conditions and anticipated operational occurrences.

A comment was received indicating that the health of the public is being placed at risk presently and this policy would continue under the proposed NRC rules. The NRC standards require that the Corporation must meet part 20 requirements for protection of workers and the public against radiation. This includes specific effluent limits that the Corporation must meet. The Commission believes that the current requirements of part 20 provide for

adequate safety for workers and the public from radiation effects.

Requirements for reporting of defects and noncompliance are contained in 10 CFR part 21, "Reporting of Defects and Noncompliance." Part 21 specifies the procedures and requirements for persons to notify the Commission immediately of component defects or failure to comply with regulatory requirements which could create a substantial safety hazard.

Requirements for fitness-for-duty programs are contained in 10 CFR part 26, "Fitness-for-Duty Programs." Part 26 prescribes requirements and standards for the establishment and maintenance of fitness-for-duty programs to reduce the likelihood of theft or diversion of strategic special nuclear material. The requirements of this part are relevant only to the extent that the Corporation elects to engage in activities which involve formula quantities of strategic special nuclear material.

Requirements for packaging and transportation are contained in 10 CFR part 71, "Packaging and Transportation of Radioactive Material." Part 71 establishes requirements and procedures for packaging, preparation for shipment, and transportation of radioactive material.

Requirements for physical security and material control and accounting are contained in 10 CFR part 70, "Domestic Licensing of Special Nuclear Material," part 73, "Physical Protection of Plants and Materials," and part 74, "Material Control and Accounting of Special Nuclear Material," as specified in subpart E to this part. Subpart E to part 74 identifies the specific sections that establish the requirements and procedures for transfer, protection at fixed sites and in transit, and control and accounting of the various enrichments of U-235 covered under the certification.

Safeguards regulation of special nuclear material is conducted on a graded basis. The grades reflect the importance of specified kinds and quantities of material to the public safety and to the common defense and security. Three grades of material are defined in Commission regulations. In declining order of importance they are:

- (1) Formula quantities of strategic special nuclear material (also referred to by the shorter phrase "Category I material");
- (2) Special nuclear material of moderate strategic significance (Category II), and
- (3) Special nuclear material of low strategic significance (Category III).

The gaseous diffusion plants are to produce only Category III material, and

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only the safeguards for that grade of material need apply to production activities. Nonetheless, the Commission recognizes that the Corporation may need to or may opt to engage in nonproduction activities that involve the other categories of material. In the past, the Portsmouth plant has produced high enriched uranium hexafluoride (UF₆). As a result of this past production, there may be portions of the plant under lease by the Corporation or to which it will have access that will continue to have high enriched UF₆ fixed to interior surfaces of process equipment. Additionally, some areas, such as the analytical laboratory, may continue to have a high enriched inventory. The Corporation may elect to engage in nonproduction business activities that involve high enriched UF₆. To be responsive to the full range of possible Corporation activities, safeguards regulations for all three categories of material are listed in subpart E and are to be applied in accordance with the categories of material the Corporation actually uses, possesses, or has access to.

One commenter noted that the referenced requirement of § 70.51(d) is not consistent with § 74.33(c)(4)(i) [12 months verses 370 days] in specifying the static inventory frequency for material control and accounting for uranium. The NRC agrees with this comment and has revised § 76.117(a) to specify 370 days as the static inventory frequency for the GDPs. The 370-day period contained in § 74.33(c)(4)(i) and revised § 76.117(a) provides a full year with an additional margin of a few days to provide flexibility.

Other comments focus on §§ 74.15(b)(2), 74.33(c)(2), 74.33(c)(4)(i) and 74.33(c)(6), which are among the various material control and accounting requirements referenced in § 76.117. The comments request relief from various aspects of these requirements and provide rationale in support of the request. The requirements of § 74.15 and § 74.33 are performance requirements that must be implemented on a site-specific basis for the fundamental nuclear material control plans for each site that the Corporation must submit for NRC approval. The nuclear material control plans must describe how each requirement will be carried out at each of the two sites. After approval, the plan will become the principal document that governs material control and accounting at the site. Because the requirements are performance requirements rather than prescriptive requirements, wide latitude exists for achieving appropriate performance for the overall material control and

accounting program. Accordingly, no change to the proposed regulation was made in response to these specific comments.

The requirement the Corporation believes has the greatest potential cost impact is § 74.33(c)(4)(i), which requires enrichment facilities to conduct periodic inventories of in-process enriched uranium for safeguards accountability purposes. This inventory consists of a large quantity of material in gaseous form and a relatively small quantity of solids. The Corporation requested that the rule require measurement of material in the gas phase only. The Corporation believes that, due to the size of the facilities, the relatively small quantity of solids, and the limitations of instruments in distinguishing between the solids and the gaseous material, extensive direct measurement of the solids is not practical and the cost would, in any case, be prohibitive. The Commission believes that a broad exemption from measurement of the solids would undermine the well-established domestic and international safeguards principle requiring strict accountability of special nuclear material. The Commission further believes that the rule can be met by methods other than extensive direct measurements, for example, appropriate sampling and use of previous measurements, at reasonable cost and, therefore the rule has not been changed.

In the course of reviewing the comments, it was found that § 70.22(h), which contains requirements for physical security plans for Category I material, had not been incorporated by reference in § 76.113 as was intended. That reference has now been incorporated. The change is for completeness and will affect the Corporation only in the unlikely event that it elects to operate a Category I plant. Additionally, it was found that § 73.70 had been unintentionally incorporated by reference into § 76.117. The reference is not relevant to § 76.117 and has been deleted.

NRC does not intend to incorporate any additional requirements for personnel security screening for access to or control over special nuclear material as contained in 10 CFR part 11, "Criteria and Procedures for Determining Eligibility for Access to or Control over Special Nuclear Material," if the Corporation elects to engage in activities which involve strategic special nuclear material. The requirements for this separate access program are met by the DOE access authorization program for the GDPs.

A comment was received indicating that no unrecovered costs should be incurred by the NRC in conjunction with certification, and a fee schedule should be included in the rule. All NRC costs associated with GDP certification are recovered from the Corporation and need not be covered in this rule. Fees are covered in 10 CFR parts 170 and 171.

Requirements for security facility approval and protection of classified matter are contained in 10 CFR part 95, "Security Facility Approval and Safeguarding of National Security Information and Restricted Data." The Corporation and its contractor personnel will be considered as authorized by the Commission under § 95.35(a) for access to classified matter based on their DOE access authorizations.

In addition, the Corporation commented that the proposed modification to § 95.5 should be deleted because it incorrectly attempts to incorporate the Corporation, which is not a licensee, under the definition of a "licensee." This suggested revision was adopted as "corporation," is covered in § 76.60 and is under the definition of "person" listed in 10 CFR 95.5.

The Corporation requested that § 76.119 be modified to require examination of 25 percent of the security containers daily on a rotational basis if the containers are in a controlled access area. The Corporation also recommended that § 76.119 be modified to specifically state that 10 CFR 95.37(g), 95.41, 95.43, and parts of § 95.47 do not apply to the Corporation and to clarify that document control practices implemented under DOE security oversight may continue. DOE commented that the rule should include an exception that the Corporation be permitted to continue using the applicable DOE procedures and practices when a conflict occurs between NRC requirements and the DOE documents. The Commission does not accept this recommendation, because the regulations for protection of classified matter should be consistent for all regulated organizations. The provisions of 10 CFR part 95, coupled with an approved security plan for the protection of classified matter, will contain all of the applicable requirements for security facility approval and for the safeguarding of classified matter at the gaseous diffusion plants. The Commission does not anticipate any significant conflicts with the previous DOE procedures. However, any conflicts that may be identified will be resolved on a case-by-case basis.

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Security Facility Approval and Safeguarding of National Security Information and Restricted Data; Minor Conforming Changes

Minor editorial changes are also being made to certain sections of 10 CFR part 95 to clarify that there are unique aspects of uranium enrichment facilities and operations which handle, store, process, transport, transmit, and destroy classified matter. Specific changes include replacing the use of the term "documents" with "matter" in order to include the classified equipment and hardware associated with uranium enrichment plants; more precisely defining "NRC access authorizations" because the Corporation will not be subject to 10 CFR part 25; and modifying § 95.36 to include participants in other international agreements.

Section 95.37(a) is also being revised to replace the reference to classification guidance previously included as Appendix A to part 95. This guidance is available separately in a more usable form such as NUREG/BR-0069, Revision 2, "NRC Classification Guide for National Security Information Concerning Nuclear Material And Facilities." NUREG/BR-0069, which is publicly available, can readily be updated to promptly reflect Executive Orders that require modifications to the guidance associated with classification issues. Currently, each NRC licensee has committed in its approved security plans to using NUREG/BR 0069 instead of relying on 10 CFR part 95, appendix A. Similarly, the GDPs will be expected to reference more up-to-date classification guidance such as NUREG/BR-0069 in complying with 10 CFR part 95. Because NUREG/BR-0069 is a more appropriate reference than 10 CFR part 95, appendix A, this appendix is being deleted and appropriate changes to § 95.37(a) are being made to reflect the actual use of alternative NRC classification guidance documents.

Finding of No Significant Environmental Impact: Availability; Categorical Exclusion

The Commission has determined under the National Environmental Policy Act (NEPA) of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The two plants to be regulated by this rule have already been subject to evaluation in accordance with NEPA. The Department of Energy has prepared

an environmental impact statement for the gaseous diffusion plant in Piketon, Ohio,³ and an environmental assessment for the plant in Paducah, Kentucky.⁴ The NRC has reviewed those documents, as well as environmental reports prepared by DOE for both facilities in 1992 and environmental audits prepared by DOE prior to turning operation of the Facilities over to the Corporation in 1993. The NRC also conducted extensive site visits. No significant differences in operations, previously evaluated by DOE, were identified that would result in current operations having significantly different environmental effects than those already evaluated in DOE's environmental reviews. The Commission's certification requirements are intended to be at least as stringent as the existing requirements applicable to the two plants which are currently operating and have been operating for nearly 40 years. The promulgation of a rule governing these plants, and their subsequent regulation by the NRC, will not result in any environmental impacts beyond those previously considered by DOE in its environmental reviews and which currently exist or would be expected to continue absent NRC regulatory oversight. The NRC environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Similarly, subsequent certificates of compliance including amendments, modifications, and renewals issued pursuant to this part will consist of findings of compliance with 10 CFR part 76. Therefore, these actions will not result in any significant new environmental impacts. The regulations require that the Corporation submit information for use by NRC in preparing an environmental assessment for certification applications addressing areas where the facilities are not in compliance with the requirements of part 76. Part 51 of Title 10 of the Code of Federal Regulations is being amended to include a categorical exclusion for such certification actions pursuant to part 76.

Under its procedures implementing NEPA, the Commission may exclude from preparation of an environmental

impact statement or an environmental assessment a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in NRC procedures. In this rulemaking, the Commission finds that the issuance, amendment, modification, and revision of a certificate of compliance for the Corporation comprise a category of actions which does not individually or cumulatively have a significant effect on the human environment. Actions within this category are similar in that they will be based on a finding by NRC that the Corporation has demonstrated compliance with the requirements in part 76. After conducting an environmental assessment for part 76, the Commission made a finding of no significant environmental impact, and concluded that part 76 requirements, if promulgated, would not allow the enrichment facilities to operate in such a way as to result in any adverse environmental effects greater than those which currently exist or would be expected to continue absent NRC regulatory oversight. Accordingly, a Commission finding of compliance with the part 76 requirements would not have a significant effect on the human environment.

Paperwork Reduction Act Statement

The information collection requirements contained in this rule of limited applicability apply only to a wholly-owned instrumentality of the United States and affect fewer than 10 respondents. Therefore, Office of Management and Budget clearance is not required pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities because it only addresses the Corporation's operation of two existing plants which do not fall into this category.

³ Final Environmental Impact Statement, Portsmouth Gaseous Diffusion Plant Site, May 1977, ERDA-1555; Final Environmental Statement, Portsmouth Gaseous Diffusion Plant Expansion, September 1977, ERDA-1549.

⁴ Final Environmental Impact Assessment Of The Paducah Gaseous Diffusion Plant Site, August 1982, DOE/EA-0155.

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Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule, and therefore, a backfit analysis is not required.

List of Subjects

10 CFR Part 19

Criminal penalties, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Radiation protection, Reporting and recordkeeping requirements, Sex discrimination.

10 CFR Part 20

Byproduct material, Criminal penalties, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 21

Nuclear power plants and reactors, Penalties, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 26

Alcohol abuse, Alcohol testing, Appeals, Chemical testing, Drug abuse, Drug testing, Employee assistance programs, Fitness for duty, Management actions, Nuclear power reactors, Protection of information, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 71

Criminal penalties, Hazardous materials transportation, Nuclear materials, Packaging and containers, Reporting and recordkeeping requirements.

10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Export, Import, Nuclear materials, Nuclear power plants

and reactors, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 74

Accounting, Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

10 CFR Part 76

Certification, Criminal penalties, Radiation protection, Reporting and recordkeeping requirements, Security measures, Special nuclear material, Uranium enrichment by gaseous diffusion.

10 CFR Part 95

Classified information, Criminal penalties, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 553; the NRC is adopting the following amendments to 10 CFR parts 19, 20, 21, 26, 51, 70, 71, 73, 74, and 95 and the new 10 CFR part 76.

60 FR 24549

Published 5/9/95

Effective 5/9/95

Changes to NRC Addresses and Telephone Numbers

See Part 2 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
81**

**STANDARD SPECIFICATIONS FOR THE GRANTING OF
PATENT LICENSES**

STATEMENTS OF CONSIDERATION

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes

See Part 1 Statements of Consideration

55 FR 23422
Published 6/8/90
Effective 6/8/90

10 CFR Part 81

RIN 3150-AD54

**Standard Specifications for the
Granting of Patent Licenses**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory
Commission (NRC) is amending its
regulations regarding Office of
Management and Budget (OMB)
clearance pursuant to the Paperwork
Reduction Act of 1980. This action is
necessary to inform the public that OMB
clearance has been obtained for the
information collection requirements
contained in 10 CFR part 81 under
control number 3150-0121.

EFFECTIVE DATE: June 8, 1990.

FOR FURTHER INFORMATION CONTACT:
Ronald M. Smith, Senior Attorney,
Division of Rulemaking and Fuel Cycle,
Office of the General Counsel, U.S.
Nuclear Regulatory Commission,
Washington, DC 20555, telephone (301)
492-1640.

SUPPLEMENTARY INFORMATION: The
OMB regulations which implement the
Paperwork Reduction Act, 5 CFR part

1320, provide in pertinent part that "ten
or more persons" are deemed to be
involved when a recordkeeping or
reporting requirement is contained in a
rule of general applicability. See 5 CFR
1320.7(a)(1). The NRC previously has
obtained OMB clearance for the
collection requirements in 10 CFR part
81 under control number 3150-0121.
Accordingly, § 81.8 is being revised to
correctly indicate this fact.

Because this is an amendment dealing
with agency practice and procedures,
the notice and comment provisions of
the Administrative Procedure Act do not
apply pursuant to 5 U.S.C. 553(b)(A).
The amendment is effective upon
publication in the Federal Register.
Good cause exists to dispense with the
usual 30-day delay in the effective date
because the amendment is of a minor
and administrative nature dealing with
the announcement of the clearance
number under which OMB has approved
the information collection requirements
contained in 10 CFR part 81.

**Environmental Impact: Categorical
Exclusion**

The NRC has determined that this
final rule is the type of action described
in categorical exclusion 10 CFR
51.22(c)(3). Therefore neither an
environmental impact statement nor an
environmental assessment has been
prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new
or amended information collection
requirement subject to the Paperwork
Reduction Act of 1980 (44 U.S.C. 3501 et
seq.). Existing requirements were
approved by the Office of Management
and Budget approval number 3150-0121.

Backfit Analysis

The NRC has determined that the
backfit rule, 10 CFR 50.109, does not
apply to this final rule, and therefore,
that a backfit analysis is not required for
this final rule, because this amendment

does not involve any provisions which
would impose backfits as defined in 10
CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 81

Administrative practice and
procedure, inventions and patents.

For the reasons set out in the
preamble and under the authority of the
Atomic Energy Act of 1954, as amended,
the Energy Reorganization Act of 1974,
as amended and 5 U.S.C. 552 and 553,
the NRC is adopting the following
amendment to 10 CFR part 81.

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
95**

**SECURITY FACILITY APPROVAL AND SAFEGUARDING
OF NATIONAL SECURITY INFORMATION AND
RESTRICTED DATA**

STATEMENTS OF CONSIDERATION

52 FR 31601
Published 8/21/87
Effective 8/19/87

*Statement of Organization and General
Information*

See Part 1 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

54 FR 40859
Published 10/4/89
Effective 10/4/89

*Access Authorization Fee Schedule for
Licensee Personnel and
Implementation of the Standard Form*

See Part 25 Proposed Rule Making

54 FR 53312
Published 12/28/89.
Effective 12/28/89

*Statement of Organization and General
Information; Minor Amendments*

See Part 1 Statements of Consideration

55 FR 11572
Published 3/29/90.
Effective 4/30/90

*Credit Checks—Expanded Personnel
Security Investigative Coverage*

See Part 11 Statements of Consideration

55 FR 14379
Published 4/17/90.

*Credit Checks—Expanded Personnel
Security Investigative Coverage
(Correction)*

See Part 11 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

*Clarification of Statutory Authority for
Purposes of Criminal Enforcement*

See Part 11 Statements of Consideration

59 FR 48944
Published 9/23/94
Effective 10/24/94

*Certification of Gaseous Diffusion
Plants*

See Part 76 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART
100

REACTOR SITE CRITERIA

STATEMENTS OF CONSIDERATION

53 FR 43419
Published 10/27/88
Effective 10/27/88

*Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes*

See Part 1 Statements of Consideration

61 FR 65157
Published 12/11/96
Effective 1/10/97

10 CFR Parts 21, 50, 52, 54 and 100

RIN 3150-AD93

**Reactor Site Criteria Including Seismic
and Earthquake Engineering Criteria
for Nuclear Power Plants**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to update the criteria used in decisions regarding power reactor siting, including geologic, seismic, and earthquake engineering considerations for future nuclear power plants. The rule allows NRC to benefit from experience gained in the application of the procedures and methods set forth in the current regulation and to incorporate the rapid advancements in the earth sciences and earthquake engineering. This rule primarily consists of two separate changes, namely, the source term and dose considerations, and the seismic and earthquake engineering considerations of reactor

siting. The Commission also is denying the remaining issue in petition (PRM-50-20) filed by Free Environment, Inc. et al.

EFFECTIVE DATE: January 10, 1997.

FOR FURTHER INFORMATION CONTACT: Dr. Andrew J. Murphy, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6010, concerning the seismic and earthquake engineering aspects and Mr. Charles E. Ader, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-5622, concerning other siting aspects.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Objectives.
- III. Genesis.
- IV. Alternatives.
- V. Major Changes.
 - A. Reactor Siting Criteria (Nonseismic).
 - B. Seismic and Earthquake Engineering Criteria.
- VI. Related Regulatory Guides and Standard Review Plan Sections.
- VII. Future Regulatory Action.
- VIII. Referenced Documents.
- IX. Summary of Comments on the Proposed Regulations.
 - A. Reactor Siting Criteria (Nonseismic).

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- B. Seismic and Earthquake Engineering Criteria.
- X. Small Business Regulatory Enforcement Fairness Act
- XI. Finding of No Significant Environmental Impact: Availability.
- XII. Paperwork Reduction Act Statement.
- XIII. Regulatory Analysis.
- XIV. Regulatory Flexibility Certification.
- XV. Backfit Analysis.

I. Background

The present regulation regarding reactor site criteria (10 CFR Part 100) was promulgated April 12, 1962 (27 FR 3509). NRC staff guidance on exclusion area and low population zone sizes as well as population density was issued in Regulatory Guide 4.7, "General Site Suitability Criteria for Nuclear Power Stations," published for comment in September 1974. Revision 1 to this guide was issued in November 1975. On June 1, 1976, the Public Interest Research Group (PIRG) filed a petition for rulemaking (PRM-100-2) requesting that the NRC incorporate minimum exclusion area and low population zone distances and population density limits into the regulations. On April 28, 1977, Free Environment, Inc. et al., filed a petition for rulemaking (PRM-50-20). The remaining issue of this petition requests that the central Iowa nuclear project and other reactors be sited at least 40 miles from major population centers. In August 1978, the Commission directed the NRC staff to develop a general policy statement on nuclear power reactor siting. The "Report of the Siting Policy Task Force" (NUREG-0625) was issued in August 1979 and provided recommendations regarding siting of future nuclear power reactors. In the 1980 Authorization Act for the NRC, the Congress directed the NRC to decouple siting from design and to specify demographic criteria for siting. On July 29, 1980 (45 FR 50350), the NRC issued an Advance Notice of Proposed Rulemaking (ANPRM) regarding revision of the reactor site criteria, which discussed the recommendations of the Siting Policy Task Force and sought public comments. The proposed rulemaking was deferred by the Commission in December 1981 to await development of a Safety Goal and improved research on accident source terms. On August 4, 1986 (51 FR 23044), the NRC issued its Policy Statement on Safety Goals that stated quantitative health objectives with regard to both prompt and latent cancer fatality risks. On December 14, 1988 (53 FR 50232), the NRC denied PRM-100-2 on the basis that it would unnecessarily restrict NRC's regulatory siting policies and would not result in a substantial increase in the overall

protection of the public health and safety. The Commission is addressing the remaining issue in PRM-50-20 as part of this rulemaking action.

Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," to 10 CFR Part 100 was originally issued as a proposed regulation on November 25, 1971 (36 FR 22601), published as a final regulation on November 13, 1973 (38 FR 31279), and became effective on December 13, 1973. There have been two amendments to 10 CFR Part 100, Appendix A. The first amendment, issued November 27, 1973 (38 FR 32575), corrected the final regulation by adding the legend under the diagram. The second amendment resulted from a petition for rulemaking (PRM 100-1) requesting that an opinion be issued that would interpret and clarify Appendix A with respect to the determination of the Safe Shutdown Earthquake. A notice of filing of the petition was published on May 14, 1975 (40 FR 20983). The substance of the petitioner's proposal was accepted and published as an immediately effective final regulation on January 10, 1977 (42 FR 2052).

The first proposed revision to these regulations was published for public comment on October 20, 1992, (57 FR 47802). The availability of the five draft regulatory guides and the standard review plan section that were developed to provide guidance on meeting the proposed regulations was published on November 25, 1992, (57 FR 55601). The comment period for the proposed regulations was extended two times. First, the NRC staff initiated an extension (58 FR 271; January 5, 1993) from February 17, 1993 to March 24, 1993, to be consistent with the comment period on the draft regulatory guides and standard review plan section. Second, in response to a request from the public, the comment period was extended to June 1, 1993 (58 FR 16377; March 26, 1993).

The second proposed revision to these regulations was published for public comment on October 17, 1994 (59 FR 52255). The NRC stated on February 8, 1995, (60 FR 7467) that it intended to extend the comment period to allow interested persons adequate time to provide comments on staff guidance documents. On February 28, 1995, the availability of the five draft regulatory guides and three standard review plan sections that were developed to provide guidance on meeting the proposed regulations was published (60 FR 10880) and the comment period for the proposed rule was extended to May 12, 1995 (60 FR 10810).

II. Objectives

The objectives of this regulatory action are to—

1. State basic site criteria for future sites that, based upon experience and importance to risk, have been shown as key to protecting public health and safety;
2. Provide a stable regulatory basis for seismic and geologic siting and applicable earthquake engineering design of future nuclear power plants that will update and clarify regulatory requirements and provide a flexible structure to permit consideration of new technical understandings; and
3. Relocate source term and dose requirements that apply primarily to plant design into 10 CFR Part 50.

III. Genesis

The regulatory action reflects changes that are intended to (1) benefit from the experience gained in applying the existing regulation and from research; (2) resolve interpretive questions; (3) provide needed regulatory flexibility to incorporate state-of-the-art improvements in the geosciences and earthquake engineering; and (4) simplify the language to a more "plain English" text.

The new requirements in this rulemaking apply to applicants who apply for a construction permit, operating license, preliminary design approval, final design approval, manufacturing license, early site permit, design certification, or combined license on or after the effective date of the final regulations. However, for those operating license applicants and holders whose construction permits were issued prior to the effective date of this final regulation, the reactor site criteria in 10 CFR Part 100, and the seismic and geologic siting criteria and the earthquake engineering criteria in Appendix A to 10 CFR Part 100 would continue to apply in all subsequent proceedings, including license amendments and renewal of operating licenses pursuant to 10 CFR Part 54.

Criteria not associated with the selection of the site or establishment of the Safe Shutdown Earthquake Ground Motion (SSE) have been placed in 10 CFR Part 50. This action is consistent with the location of other design requirements in 10 CFR Part 50.

Because the revised criteria presented in this final regulation does not apply to existing plants, the licensing bases for existing nuclear power plants must remain a part of the regulations. Therefore, the non-seismic and seismic reactor site criteria for current plants is retained as Subpart A and Appendix A

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to 10 CFR Part 100, respectively. The revised reactor site criteria is added as Subpart B in 10 CFR Part 100 and applies to site applications received on or after the effective date of the final regulations. Non-seismic site criteria is added as a new § 100.21 to Subpart B in 10 CFR Part 100. The criteria on seismic and geologic siting is added as a new § 100.23 to Subpart B in 10 CFR Part 100. The dose calculations and the earthquake engineering criteria is located in 10 CFR Part 50 (§ 50.34(a) and Appendix S, respectively). Because Appendix S is not self executing, applicable sections of Part 50 (§ 50.34 and § 50.54) are revised to reference Appendix S. The regulation also makes conforming amendments to 10 CFR Parts 21, 50, 52, and 54. Sections 21.3, 50.49(b)(1), 50.65(b)(1), 52.17(a)(1), and 54.4(a)(1)(iii) are amended to reflect changes in § 50.34(a)(1) and 10 CFR Part 100.

IV. Alternatives

The first alternative considered by the Commission was to continue using current regulations for site suitability determinations. This is not considered an acceptable alternative. Accident source terms and dose calculations currently primarily influence plant design requirements rather than siting. It is desirable to state basic site criteria which, through importance to risk, have been shown to be key to assuring public health and safety. Further, significant advances in understanding severe accident behavior, including fission product release and transport, as well as in the earth sciences and in earthquake engineering have taken place since the promulgation of the present regulation and deserve to be reflected in the regulations.

The second alternative considered was replacement of the existing regulation with an entirely new regulation. This is not an acceptable alternative because the provisions of the existing regulations form part of the licensing bases for many of the operating nuclear power plants and others that are in various stages of obtaining operating licenses. Therefore, these provisions should remain in force and effect.

The approach of establishing the revised requirements in new sections to 10 CFR Part 100 and relocating plant design requirements to 10 CFR Part 50 while retaining the existing regulation was chosen as the best alternative. The public will benefit from a clearer, more uniform, and more consistent licensing process that incorporates updated information and is subject to fewer interpretations. The NRC staff will

benefit from improved regulatory implementation (both technical and legal), fewer interpretive debates, and increased regulatory flexibility. Applicants will derive the same benefits in addition to avoiding licensing delays caused by unclear regulatory requirements.

V. Major Changes

A. Reactor Siting Criteria (Nonseismic)

Since promulgation of the reactor site criteria in 1962, the Commission has approved more than 75 sites for nuclear power reactors and has had an opportunity to review a number of others. In addition, light-water commercial power reactors have accumulated about 2000 reactor-years of operating experience in the United States. As a result of these site reviews and operational experience, a great deal of insight has been gained regarding the design and operation of nuclear power plants as well as the site factors that influence risk. In addition, an extensive research effort has been conducted to understand accident phenomena, including fission product release and transport. This extensive operational experience together with the insights gained from recent severe accident research as well as numerous risk studies on radioactive material releases to the environment under severe accident conditions have all confirmed that present commercial power reactor design, construction, operation and siting is expected to effectively limit risk to the public to very low levels. These risk studies include the early "Reactor Safety Study" (WASH-1400), published in 1975, many Probabilistic Risk Assessment (PRA) studies conducted on individual plants as well as several specialized studies, and the recent "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," (NUREG-1150), issued in 1990. Advanced reactor designs currently under review are expected to result in even lower risk and improved safety compared to existing plants. Hence, the substantial base of knowledge regarding power reactor siting, design, construction and operation reflects that the primary factors that determine public health and safety are the reactor design, construction and operation.

Siting factors and criteria, however, are important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low, that natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the plant, that site characteristics are such that adequate

security measures to protect the plant can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified. The Commission has also had a long standing policy of siting reactors away from densely populated centers, and is continuing this policy in this rule.

The Commission is incorporating basic reactor site criteria in this rule to accomplish the above purposes. The Commission is retaining source term and dose calculations to verify the adequacy of a site for a specific plant, but source term and dose calculations are relocated to Part 50, since experience has shown that these calculations have tended to influence plant design aspects such as containment leak rate or filter performance rather than siting. No specific source term is referenced in Part 50. Rather, the source term is required to be one that is " * * * assumed to result in substantial meltdown of the core with subsequent release into the containment of appreciable quantities of fission products." Hence, this guidance can be utilized with the source term currently used for light-water reactors, or used in conjunction with revised accident source terms.

The relocation of source term and dose calculations to Part 50 represent a partial decoupling of siting from accident source term and dose calculations. The siting criteria are envisioned to be utilized together with standardized plant designs whose features will be certified in a separate design certification rulemaking procedure. Each of the standardized designs will specify an atmospheric dilution factor that would be required to be met, in order to meet the dose criteria at the exclusion area boundary. For a given standardized design, a site having relatively poor dispersion characteristics would require a larger exclusion area distance than one having good dispersion characteristics. Additional design features would be discouraged in a standardized design to compensate for otherwise poor site conditions.

Although individual plant tradeoffs will be discouraged for a given standardized design, a different standardized design could require a different atmospheric dilution factor. For custom plants that do not involve a standardized design, the source term and dose criteria will continue to provide assurance that the site is acceptable for the proposed design.

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Rationale for Individual Criteria

(A) *Exclusion Area.* An exclusion area surrounding the immediate vicinity of the plant has been a requirement for siting power reactors from the very beginning. This area provides a high degree of protection to the public from a variety of potential plant accidents and also affords protection to the plant from potential man-related hazards. The Commission considers an exclusion area to be an essential feature of a reactor site and is retaining this requirement, in Part 50, to verify that an applicant's proposed exclusion area distance is adequate to assure that the radiological dose to an individual will be acceptably low in the event of a postulated accident. However, as noted above, if source term and dose calculations are used in conjunction with standardized designs, unlimited plant tradeoffs to compensate for poor site conditions will not be permitted. For plants that do not involve standardized designs, the source term and dose calculations will provide assurance that the site is acceptable for the proposed design.

The present regulation requires that the exclusion area be of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated fission product release would not receive a total radiation dose in excess of 25 rem to the whole body or 300 rem to the thyroid gland. A footnote in the present regulation notes that a whole body dose of 25 rem has been stated to correspond numerically to the once in a lifetime accidental or emergency dose to radiation workers which could be disregarded in the determination of their radiation exposure status (NBS Handbook 69 dated June 5, 1959). However, the same footnote also clearly states that the Commission's use of this value does not imply that it considers it to be an acceptable limit for an emergency dose to the public under accident conditions, but only that it represents a reference value to be used for evaluating plant features and site characteristics intended to mitigate the radiological consequences of accidents in order to provide assurance of low risk to the public under postulated accidents. The Commission, based upon extensive experience in applying this criterion, and in recognition of the conservatism of the assumptions in its application (a large fission product release within containment associated with major core damage, maximum allowable containment leak rate, a postulated single failure of any of the fission product cleanup systems, such as the containment sprays, adverse site

meteorological dispersion characteristics, an individual presumed to be located at the boundary of the exclusion area at the centerline of the plume for two hours without protective actions), believes that this criterion has clearly resulted in an adequate level of protection. As an illustration of the conservatism of this assessment, the maximum whole body dose received by an actual individual during the Three Mile Island accident in March 1979, which involved major core damage, was estimated to be about 0.1 rem.

The proposed rule considered two changes in this area.

First, the Commission proposed that the use of different doses for the whole body and thyroid gland be replaced by a single value of 25 rem, total effective dose equivalent (TEDE).

The proposed use of the total effective dose equivalent, or TEDE, was noted as being consistent with Part 20 of the Commission's regulations and was also based upon two considerations. First, since it utilizes a risk consistent methodology to assess the radiological impact of all relevant nuclides upon all body organs, use of TEDE promotes a uniformity and consistency in assessing radiation risk that may not exist with the separate whole body and thyroid organ dose values in the present regulation. Second, use of TEDE lends itself readily to the application of updated accident source terms, which can vary not only with plant design, but in which additional nuclides, besides the noble gases and iodine are predicted to be released into containment.

The Commission considered the current dose criteria of 25 rem whole body and 300 rem thyroid with the intent of selecting a TEDE numerical value equivalent to the risk implied by the current dose criteria. The Commission proposed to use the risk of latent cancer fatality as the appropriate risk measure since quantitative health objectives (QHOs) for it have been established in the Commission's Safety Goal policy. Although the supplementary information in the proposed rule noted that the current dose criteria are equivalent in risk to 27 rem TEDE, the Commission proposed to use 25 rem TEDE as the dose criterion for plant evaluation purposes, since this value is essentially the same level of risk as the current criteria.

However, the Commission specifically requested comments on whether the current dose criteria should be modified to utilize the total effective dose equivalent or TEDE concept, whether a TEDE value of 25 rem (consistent with latent cancer fatality), or 34 rem (consistent with latent cancer

incidence), or some other value should be used, and whether the dose criterion should also include a "capping" limitation, that is, an additional requirement that the dose to any individual organ not be in excess of some fraction of the total.

Based on the comments received, there was a general consensus that the use of the TEDE concept was appropriate, and a nearly unanimous opinion that no organ "capping" dose was required, since the TEDE concept provided the appropriate risk weighting for all body organs.

With regard to the value to be used as the dose criterion, a number of comments were received that the proposed value of 25 rem TEDE represented a more restrictive criterion than the current values of 25 rem whole body and 300 rem to the thyroid gland. These commenters noted that the use of organ weighting factors of 1 for the whole body and 0.03 for the thyroid as given in 10 CFR Part 20, would yield a value of 34 rem TEDE for whole body and thyroid doses of 25 and 300 rem, respectively. This is because the organ weighting factors in 10 CFR Part 20 include other effects (e.g., genetic) in addition to latent cancer fatality.

After careful consideration, the Commission has decided to adopt a value of 25 rem TEDE as the dose acceptance criterion for the final rule. The bases for this decision follows. First, the Commission has generally based its regulations on the risk of latent cancer fatality. Although a numerical calculation would lead to a value of 27 rem TEDE, as noted in the discussion that accompanied the proposed rule, the Commission concludes that a value of 25 rem is sufficiently close, and that the use of 27 rather than 25 implies an unwarranted numerical precision. In addition, in terms of occupational dose, Part 20 also permits a once-in-a-lifetime planned special dose of 25 rem TEDE. In addition, EPA guidance sets a limit of 25 rem TEDE for workers performing emergency service such as lifesaving or protection of large populations. While the Commission does not, as noted above, regard this dose value as one that is acceptable for members of the public under accident conditions, it provides a useful perspective with regard to doses that ought not to be exceeded, even for radiation workers under emergency conditions.

The argument that a criterion of 25 rem TEDE in conjunction with the organ weighting factors of 10 CFR Part 20 for its calculation represents a tightening of the dose criterion, while true in theory, is not true in practice. A review of the dose analyses for operating plants has

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shown that the thyroid dose limit of 300 rem has been the limiting dose criterion in licensing reviews, and that all operating plants would be able to meet a dose criterion of 25 rem TEDE. Hence, the Commission concludes that, in practice, use of the organ weighting factors of Part 20 together with a dose criterion of 25 rem TEDE, represents a relaxation rather than a tightening of the dose criterion. In adopting this value, the Commission also rejects the view, advanced by some, that the dose calculation is merely a "reference" value that bears no relation to what might be experienced by an actual person in an accident. Although the Commission considers it highly unlikely that an actual person would receive such a dose, because of the conservative and stylized assumptions employed in its calculation, it is conceivable.

The second change proposed in this area was in regard to the time period that a hypothetical individual is assumed to be at the exclusion area boundary. While the duration of the time period remains at a value of two hours, the proposed rule stated that this time period not be fixed in regard to the appearance of fission products within containment, but that various two-hour periods be examined with the objective that the dose to an individual not be in excess of 25 rem TEDE for any two-hour period after the appearance of fission products within containment. The Commission proposed this change to reflect improved understanding of fission product release into the containment under severe accident conditions. For an assumed instantaneous release of fission products, as contemplated by the present rule, the two hour period that commences with the onset of the fission product release clearly results in the highest dose to an individual offsite. Improved understanding of severe accidents shows that fission product releases to the containment do not occur instantaneously, and that the bulk of the releases may not take place for about an hour or more. Hence, the two-hour period commencing with the onset of fission product release may not represent the highest dose that an individual could be exposed to over any two-hour period. As a result, the Commission proposed that various two-hour periods be examined to assure that the dose to a hypothetical individual at the exclusion area boundary would not be in excess of 25 rem TEDE over any two-hour period after the onset of fission product release.

A number of comments received in regard to this proposed criterion stated that so-called "sliding" two-hour

window for dose evaluation at the exclusion area boundary was confusing, illogical, and inappropriate. Several commenters felt it was difficult to ascertain which two hour period represented the maximum. Others expressed the view that the significance of such a calculation was not clearly stated nor understood. For example, one comment expressed the view that a dose evaluated for a "sliding" two-hour period was logically inconsistent since it implied either that an individual was not at the exclusion area boundary prior to the accident, and approached close to the plant after initiation of the accident, contrary to what might be expected, or that the individual was, in fact, located at the exclusion area boundary all along, in which case the dose contribution received prior to the "maximum" two-hour value was being ignored.

Although the Commission recognizes that evaluation of the dose to a hypothetical individual over any two-hour period may not be entirely consistent with the actions of an actual individual in an accident, the intent is to assure that the short-term dose to an individual will not be in excess of the acceptable value, even where there is some variability in the time that an individual might be located at the exclusion area boundary. In addition, the dose calculation should not be taken too literally with regard to the actions of a real individual, but rather is intended primarily as a means to evaluate the effectiveness of the plant design and site characteristics in mitigating postulated accidents.

For these reasons, the Commission is retaining the requirement, in the final rule, that the dose to an individual located at the nearest exclusion area boundary over any two-hour period after the appearance of fission products in containment, should not be in excess of 25 rem total effective dose equivalent (TEDE).

(B) *Site Dispersion Factors.* Site dispersion factors have been utilized to provide an assessment of dose to an individual as a result of a postulated accident. Since the Commission is requiring that a verification be made that the exclusion area distance is adequate to assure that the guideline dose to a hypothetical individual will not be exceeded under postulated accident conditions, as well as to assure that radiological limits are met under normal operating conditions, the Commission is requiring that the atmospheric dispersion characteristics of the site be evaluated, and that site dispersion factors based upon this evaluation be determined and used in

assessing radiological consequences of normal operations as well as accidents.

(C) *Low Population Zone.* The present regulation requires that a low population zone (LPZ) be defined immediately beyond the exclusion area. Residents are permitted in this area, but the number and density must be such that there is a reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident. In addition, the nearest densely populated center containing more than about 25,000 residents must be located no closer than one and one-third times the outer boundary of the LPZ. Finally, the dose to a hypothetical individual located at the outer boundary of the LPZ over the entire course of the accident must not be in excess of the dose values given in the regulation.

While the Commission considers that the siting functions intended for the LPZ, namely, a low density of residents and the feasibility of taking protective actions, have been accomplished by other regulations or can be accomplished by other guidance, the Commission continues to believe that a requirement that limits the radiological consequences over the course of the accident provides a useful evaluation of the plant's long-term capability to mitigate postulated accidents. For this reason, the Commission is retaining the requirement that the dose consequences be evaluated at the outer boundary of the LPZ over the course of the postulated accident and that these not be in excess of 25 rem TEDE.

(D) *Physical Characteristics of the Site.* It has been required that physical characteristics of the site, such as the geology, seismology, hydrology, meteorology characteristics be considered in the design and construction of any plant proposed to be located there. The final rule requires that these characteristics be evaluated and that site parameters, such as design basis flood conditions or tornado wind loadings be established for use in evaluating any plant to be located on that site in order to ensure that the occurrence of such physical phenomena would pose no undue hazard.

(E) *Nearby Transportation Routes, Industrial and Military Facilities.* As for natural phenomena, it has been a long-standing NRC staff practice to review man-related activities in the site vicinity to provide assurance that potential hazards associated with such facilities or transportation routes will pose no undue risk to any plant proposed to be located at the site. The final rule codifies this practice.

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(F) *Adequacy of Security Plans.* The rule requires that the characteristics of the site be such that adequate security plans and measures for the plant could be developed. The Commission envisions that this will entail a small secure area considerably smaller than that envisioned for the exclusion area.

(G) *Emergency Planning.* The proposed rule stated that the site characteristics should be such that adequate plans to carry out protective measures for members of the public in the event of emergency could be developed. To avoid any misinterpretation that the Commission is adopting emergency planning standards that implicitly overrule or may be in conflict with previous Commission decisions (e.g., CLI-90-02), the language in the final rule has been modified to be consistent with that of section 52.17 of the Commission's regulations regarding early site permits.

The Commission's decision in Seabrook on emergency planning, made in connection with an operating license review for a site previously approved, is being extended in considering site suitability for future reactor sites. The Commission, in its Seabrook decision, CLI-90-02, reiterated its earlier determination in the Shoreham decision, CLI-86-13, that the adequacy of an emergency plan is to be determined by the sixteen planning standards of 10 CFR 50.47(b), and that these standards do not require that an adequate plan achieve a preset minimum radiation dose saving or a minimum evacuation time for the plume exposure pathway emergency planning zone in the event of a serious accident. Rather, the Commission noted that emergency planning is required as a matter of prudence and for defense-in-depth, and that the adequacy of an emergency plan was to be judged on the basis of its meeting the 16 planning standards given in 10 CFR 50.47(b). Hence, the characteristics of the site, which determine the evacuation time for the plume exposure pathway emergency planning zone, have not entered into the determination of the adequacy of an emergency plan. Emergency plans developed according to the above planning standards will result in reasonable assurance that adequate protective measures can be taken in the event of emergency.

It is sufficient that an applicant identify any physical site characteristics that could represent a significant impediment to the development of emergency plans, primarily to assure that "A range of protective actions have been developed for the plume exposure pathway emergency planning zone for

emergency workers and the public", as stated in the planning standards.

Accordingly, appropriate sections of the rule (e.g., § 100.21(g)) have been modified to state that "physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans must be identified." Except for the deletion of the phrase "such as egress limitations from the area surrounding the site", this language is identical to that in § 52.17(b)(1). This phrase is being deleted from § 100.21(g) (but § 52.17(b)(1) remains unchanged), to eliminate any confusion that might arise regarding its scope.

(H) *Siting Away From Densely Populated Centers.* Population density considerations beyond the exclusion area have been required since issuance of Part 100 in 1962. The current rule requires a "low population zone" (LPZ) beyond the immediate exclusion area. The LPZ boundary must be of such a size that an individual located at its outer boundary must not receive a dose in excess of the values given in Part 100 over the course of the accident. While numerical values of population or population density are not specified for this region, the regulation also requires that the nearest boundary of a densely populated center of about 25,000 or more persons be located no closer than one and one-third times the LPZ outer boundary. Part 100 has no population criteria other than the size of the LPZ and the proximity of the nearest population center, but notes that "where very large cities are involved, a greater distance may be necessary."

Whereas the exclusion area size is based upon limitation of individual risk, population density requirements serve to set societal risk limitations and reflect consideration of accidents beyond the design basis, or severe accidents. Such accidents were clearly a consideration in the original issuance of Part 100, since the Statement of Considerations (27 FR 3509; April 12, 1962) noted that:

Further, since accidents of greater potential hazard than those commonly postulated as representing an upper limit are conceivable, although highly improbable, it was considered desirable to provide for protection against excessive exposure doses to people in large centers, where effective protective measures might not be feasible * * * Hence, the population center distance was added as a site requirement.

Limitation of population density beyond the exclusion area has the following benefits:

(a) It facilitates emergency preparedness and planning; and

(b) It reduces potential doses to large numbers of people and reduces property damage in the event of severe accidents.

Although the Commission's Safety Goal policy provides guidance on individual risk limitations, in the form of the Quantitative Health Objectives (QHO), it provides no guidance with regard to societal risk limitations and therefore cannot be used to ascertain whether a particular population density would meet the Safety Goal.

However, results of severe accident risk studies, particularly those obtained from NUREG-1150, can provide useful insights for considering potential criteria for population density. Severe accidents having the highest consequences are those where core-melt together with early bypass or containment failure occurs. Such an event would likely lead to a "large release" (without defining this precisely). Based upon NUREG-1150, the probability of a core-melt accident together with early containment failure or bypass for some current generation LWRs is estimated to be between 10^{-5} and 10^{-6} per reactor year. For future plants, this value is expected to be less than 10^{-6} per reactor year.

If a reactor was located nearer to a large city than current NRC practice permitted, the likelihood of exposing a large number of people to significant releases of radioactive material would be about the same as the probability of a core-melt and early containment failure, that is, less than 10^{-6} per reactor year for future reactor designs. It is worth noting that events having the very low likelihood of about 10^{-6} per reactor year or lower have been regarded in past licensing actions to be "incredible", and as such, have not been required to be incorporated into the design basis of the plant. Hence, based solely upon accident likelihood, it might be argued that siting a reactor nearer to a large city than current NRC practice would pose no undue risk.

If, however, a reactor were sited away from large cities, the likelihood of the city being affected would be reduced because of two factors. First, the likelihood that radioactive material would actually be carried towards the city is reduced because it is likely that the wind will blow in a direction away from the city. Second, the radiological dose consequences would also be reduced with distance because the radioactive material becomes increasingly diluted by the atmosphere and the inventory becomes depleted due to the natural processes of fallout and rainout before reaching the city. Analyses indicate that if a reactor were located at distances ranging from 10 to

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about 20 miles away from a city, depending upon its size, the likelihood of exposure of large numbers of people within the city would be reduced by factors of ten to one hundred or more compared with locating a reactor very close to a city.

In summary, next-generation reactors are expected to have risk characteristics sufficiently low that the safety of the public is reasonably assured by the reactor and plant design and operation itself, resulting in a very low likelihood of occurrence of a severe accident. Such a plant can satisfy the QHOs of the Safety Goal with a very small exclusion area distance (as low as 0.1 miles). The consequences of design basis accidents, analyzed using revised source terms and with a realistic evaluation of engineered safety features, are likely to be found acceptable at distances of 0.25 miles or less. With regard to population density beyond the exclusion area, siting a reactor closer to a densely populated city than is current NRC practice would pose a very low risk to the populace.

Nevertheless, the Commission concludes that defense-in-depth considerations and the additional enhancement in safety to be gained by siting reactors away from densely populated centers should be maintained.

The Commission is incorporating a two-tier approach with regard to population density and reactor sites. The rule requires that reactor sites be located away from very densely populated centers, and that areas of low population density are, generally, preferred. The Commission believes that a site not falling within these two categories, although not preferred, can be found acceptable under certain conditions.

The Commission is not establishing specific numerical criteria for evaluation of population density in siting future reactor facilities because the acceptability of a specific site from the standpoint of population density must be considered in the overall context of safety and environmental considerations. The Commission's intent is to assure that a site that has significant safety, environmental or economic advantages is not rejected solely because it has a higher population density than other available sites. Population density is but one factor that must be balanced against the other advantages and disadvantages of a particular site in determining the site's acceptability. Thus, it must be recognized that sites with higher population density, so long as they are located away from very densely populated centers, can be approved by

the Commission if they present advantages in terms of other considerations applicable to the evaluation of proposed sites.

Petition Filed By Free Environment, Inc. et al.

On April 28, 1977, Free Environment, Inc. et al., filed a petition for rulemaking (PRM-50-20) requesting, among other things, that "the central Iowa nuclear project and other reactors be sited at least 40 miles from major population centers." The petitioner also stated that "locating reactors in sparsely-populated areas * * * has been endorsed in non-binding NRC guidelines for reactor siting." The petitioner did not specify what constituted a major population center. The only NRC guidelines concerning population density in regard to reactor siting are in Regulatory Guide 4.7, issued in 1974, and revised in 1975, prior to the date of the petition. This guide states population density values of 500 persons per square mile out to a distance of 30 miles from the reactor, not 40 miles.

Regulatory Guide 4.7 does provide effective separation from population centers of various sizes. Under this guide, a population center of about 25,000 or more residents should be no closer than 4 miles (6.4 km) from a reactor because a density of 500 persons per square mile within this distance would yield a total population of about 25,000 persons. Similarly, a city of 100,000 or more residents should be no closer than about 10 miles (16 km); a city of 500,000 or more persons should be no closer than about 20 miles (32 km), and a city of 1,000,000 or more persons should be no closer than about 30 miles (50 km) from the reactor.

The Commission has examined these guidelines with regard to the Safety Goal. The Safety Goal quantitative health objective in regard to latent cancer fatality states that, within a distance of ten miles (16 km) from the reactor, the risk to the population of latent cancer fatality from nuclear power plant operation, including accidents, should not exceed one-tenth of one percent of the likelihood of latent cancer fatalities from all other causes. In addition to the risks of latent cancer fatalities, the Commission has also investigated the likelihood and extent of land contamination arising from the release of long-lived radioactive species, such as cesium-137, in the event of a severe reactor accident.

The results of these analyses indicate that the latent cancer fatality quantitative health objective noted is met for current plant designs. From analysis done in support of this

proposed change in regulation, the likelihood of permanent relocation of people located more than about 20 miles (32 km) from the reactor as a result of land contamination from a severe accident is very low. A revision of Regulatory Guide 4.7 which incorporated this finding that population density guidance beyond 20 miles was not needed in the evaluation of potential reactor sites was issued for comment at the time of the proposed rule. No comments were received on this aspect of the guide.

Therefore, the Commission concludes that the NRC staff guidance in Regulatory Guide 4.7 provide a means of locating reactors away from population centers, including "major" population centers, depending upon their size, that would limit societal consequences significantly, in the event of a severe accident. The Commission finds that granting of the petitioner's request to specify population criteria out to 40 miles would not substantially reduce the risks to the public. As noted, the Commission also believes that a higher population density site could be found to be acceptable, compared to a lower population density site, provided there were safety, environmental, or economic advantages to the higher population site. Granting of the petitioner's request would neglect this possibility and would make population density the sole criterion of site acceptability. For these reasons, the Commission has decided not to adopt the proposal by Free Environment, Incorporated.

The Commission also notes that future population growth around a nuclear power plant site, as in other areas of the region, is expected but cannot be predicted with great accuracy, particularly in the long-term. Population growth in the site vicinity will be periodically factored into the emergency plan for the site, but since higher population density sites are not unacceptable, per se, the Commission does not intend to consider license conditions or restrictions upon an operating reactor solely upon the basis that the population density around it may reach or exceed levels that were not expected at the time of site approval. Finally, the Commission wishes to emphasize that population considerations as well as other siting requirements apply only for the initial siting for new plants and will not be used in evaluating applications for the renewal of existing nuclear power plant licenses.

Change to 10 CFR Part 50

The change to 10 CFR Part 50 relocates from 10 CFR Part 100 the dose

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requirements for each applicant at specified distances. Because these requirements affect reactor design rather than siting, they are more appropriately located in 10 CFR Part 50.

These requirements apply to future applicants for a construction permit, design certification, or an operating license. The Commission will consider after further experience in the review of certified designs whether more specific requirements need to be developed regarding revised accident source terms and severe accident insights.

B. Seismic and Earthquake Engineering Criteria

The following major changes to Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," to 10 CFR Part 100, are associated with the seismic and earthquake engineering criteria rulemaking. These changes reflect new information and research results, and incorporate the intentions of this regulatory action as defined in Section III of this rule. Much of the following discussion remains unchanged from that issued for public comment (59 FR 52255) because there were no comments which necessitated a major change to the regulations and supporting documentation.

1. Separate Siting From Design

Criteria not associated with site suitability or establishment of the Safe Shutdown Earthquake Ground Motion (SSE) have been placed into 10 CFR Part 50. This action is consistent with the location of other design requirements in 10 CFR Part 50. Because the revised criteria presented in the regulation will not be applied to existing plants, the licensing basis for existing nuclear power plants must remain part of the regulations. The criteria on seismic and geologic siting would be designated as a new § 100.23 to Subpart B in 10 CFR Part 100. Criteria on earthquake engineering would be designated as a new Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," to 10 CFR Part 50.

2. Remove Detailed Guidance From the Regulation

Appendix A to 10 CFR Part 100 contains both requirements and guidance on how to satisfy the requirements. For example, Section IV, "Required Investigations," of Appendix A, states that investigations are required for vibratory ground motion, surface faulting, and seismically induced floods and water waves. Appendix A then provides detailed guidance on what constitutes an acceptable investigation.

A similar situation exists in Section V, "Seismic and Geologic Design Bases," of Appendix A.

Geoscience assessments require considerable latitude in judgment. This latitude in judgment is needed because of limitations in data and the state-of-the-art of geologic and seismic analyses and because of the rapid evolution taking place in the geosciences in terms of accumulating knowledge and in modifying concepts. This need appears to have been recognized when the existing regulation was developed. The existing regulation states that it is based on limited geophysical and geological information and will be revised as necessary when more complete information becomes available.

However, having geoscience assessments detailed and cast in a regulation has created difficulty for applicants and the staff in terms of inhibiting the use of needed latitude in judgment. Also, it has inhibited flexibility in applying basic principles to new situations and the use of evolving methods of analyses (for instance, probabilistic) in the licensing process.

The final regulation is streamlined, becoming a new section in Subpart B to 10 CFR Part 100 rather than a new appendix to Part 100. Also, the level of detail presented in the final regulation is reduced considerably. Thus, the final regulation contains: (a) required definitions, (b) a requirement to determine the geological, seismological, and engineering characteristics of the proposed site, and (c) requirements to determine the Safe Shutdown Earthquake Ground Motion (SSE), to determine the potential for surface deformation, and to determine the design bases for seismically induced floods and water waves. The guidance documents describe how to carry out these required determinations. The key elements of the approach to determine the SSE are presented in the following section. The elements are the guidance that is described in Regulatory Guide 1.165, "Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motions."

3. Uncertainties and Probabilistic Methods

The existing approach for determining a Safe Shutdown Earthquake Ground Motion (SSE) for a nuclear reactor site, embodied in Appendix A to 10 CFR Part 100, relies on a "deterministic" approach. Using this deterministic approach, an applicant develops a single set of earthquake sources, develops for each source a postulated

earthquake to be used as the source of ground motion that can affect the site, locates the postulated earthquake according to prescribed rules, and then calculates ground motions at the site.

Although this approach has worked reasonably well for the past two decades, in the sense that SSEs for plants sited with this approach are judged to be suitably conservative, the approach has not explicitly recognized uncertainties in geosciences parameters. Because of uncertainties about earthquake phenomena (especially in the eastern United States), there have often been differences of opinion and differing interpretations among experts as to the largest earthquakes to be considered and ground-motion models to be used, thus often making the licensing process relatively unstable.

Over the past decade, analysis methods for incorporating these different interpretations have been developed and used. These "probabilistic" methods have been designed to allow explicit incorporation of different models for zonation, earthquake size, ground motion, and other parameters. The advantage of using these probabilistic methods is their ability not only to incorporate different models and different data sets, but also to weight them using judgments as to the validity of the different models and data sets, and thereby providing an explicit expression for the uncertainty in the ground motion estimates and a means of assessing sensitivity to various input parameters. Another advantage of the probabilistic method is the target exceedance probability is set by examining the design bases of more recently licensed nuclear power plants.

The final regulation explicitly recognizes that there are inherent uncertainties in establishing the seismic and geologic design parameters and allows for the option of using a probabilistic seismic hazard methodology capable of propagating uncertainties as a means to address these uncertainties. The rule further recognizes that the nature of uncertainty and the appropriate approach to account for it depend greatly on the tectonic regime and parameters, such as, the knowledge of seismic sources, the existence of historical and recorded data, and the understanding of tectonics. Therefore, methods other than the probabilistic methods, such as sensitivity analyses, may be adequate for some sites to account for uncertainties.

Methods acceptable to the NRC staff for implementing the regulation are described in Regulatory Guide 1.165, "Identification and Characterization of

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Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motion." The key elements of this approach are:

- Conduct site-specific and regional geoscience investigations,
- Target exceedance probability is set by examining the design bases of more recently licensed nuclear power plants,
- Conduct probabilistic seismic hazard analysis and determine ground motion level corresponding to the target exceedance probability
- Determine if information from the regional and site geoscience investigations change probabilistic results,
- Determine site-specific spectral shape and scale this shape to the ground motion level determined above,
- NRC staff review using all available data including insights and information from previous licensing experience, and
- Update the data base and reassess probabilistic methods at least every ten years.

Thus, the approach requires thorough regional and site-specific geoscience investigations. Results of the regional and site-specific investigations must be considered in applications of the probabilistic method. The current probabilistic methods, the NRC sponsored study conducted by Lawrence Livermore National Laboratory (LLNL) or the Electric Power Research Institute (EPRI) seismic hazard study, are regional studies without detailed information on any specific location. The regional and site-specific investigations provide detailed information to update the database of the hazard methodology as necessary.

It is also necessary to incorporate local site geological factors such as structural geology, stratigraphy, and topography and to account for site-specific geotechnical properties in establishing the design basis ground motion. In order to incorporate local site factors and advances in ground motion attenuation models, ground motion characteristics are determined using the procedures outlined in Standard Review Plan Section 2.5.2, "Vibratory Ground Motion," Revision 3.

The NRC staff's review approach to evaluate ground motion estimates is described in SRP Section 2.5.2, Revision 3. This review takes into account the information base developed in licensing more than 100 plants. Although the basic premise in establishing the target exceedance probability is that the current design levels are adequate, a staff review further assures that there is

consistency with previous licensing decisions and that the scientific bases for decisions are clearly understood. This review approach will also assess the fairly complex regional probabilistic modeling, which incorporates multiple hypotheses and a multitude of parameters. Furthermore, the NRC staff's Safety Evaluation Report should provide a clear basis for the staff's decisions and facilitate communication with nonexperts.

4. Safe Shutdown Earthquake

The existing regulation (10 CFR Part 100, Appendix A, Section V(a)(1)(iv)) states "The maximum vibratory accelerations of the Safe Shutdown Earthquake at each of the various foundation locations of the nuclear power plant structures at a given site shall be determined * * *". The location of the seismic input motion control point as stated in the existing regulation has led to confrontations with many applicants that believe this stipulation is inconsistent with good engineering fundamentals.

The final regulation moves the location of the seismic input motion control point from the foundation-level to the free-field at the free ground surface. The 1975 version of the Standard Review Plan placed the control motion in the free-field. The final regulation is also consistent with the resolution of Unresolved Safety Issue (USI) A-40, "Seismic Design Criteria" (August 1989), that resulted in the revision of Standard Review Plan Sections 2.5.2, 3.7.1, 3.7.2, and 3.7.3. The final regulation also requires that the horizontal component of the Safe Shutdown Earthquake Ground Motion in the free-field at the foundation level of the structures must be an appropriate response spectrum considering the site geotechnical properties, with a peak ground acceleration of at least 0.1g.

5. Value of the Operating Basis Earthquake Ground Motion (OBE) and Required OBE Analyses

The existing regulation (10 CFR Part 100, Appendix A, Section V(a)(2)) states that the maximum vibratory ground motion of the OBE is at least one half the maximum vibratory ground motion of the Safe Shutdown Earthquake ground motion. Also, the existing regulation (10 CFR Part 100, Appendix A, Section VI(a)(2)) states that the engineering method used to insure that structures, systems, and components are capable of withstanding the effects of the OBE shall involve the use of either a suitable dynamic analysis or a suitable qualification test. In some cases, for instance piping, these multi-facets of the

OBE in the existing regulation made it possible for the OBE to have more design significance than the SSE. A decoupling of the OBE and SSE has been suggested in several documents. For instance, the NRC staff, SECY-79-300, suggested that a compromise is required between design for a broad spectrum of unlikely events and optimum design for normal operation. Design for a single limiting event (the SSE) and inspection and evaluation for earthquakes in excess of some specified limit (the OBE), when and if they occur, may be the most sound regulatory approach. NUREG-1061, "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee," Vol.5, April 1985, (Table 10.1) ranked a decoupling of the OBE and SSE as third out of six high priority changes. In SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," the NRC staff states that it agrees that the OBE should not control the design of safety systems. Furthermore, the final safety evaluation reports related to the certification of the System 80+ and the Advanced Boiling Water Reactor design (NUREG-1462 and NUREG-1503, respectively) have already adopted the single earthquake design philosophy.

Activities equivalent to OBE-SSE decoupling are also being done in foreign countries. For instance, in Germany their new design standard requires only one design basis earthquake (equivalent to the SSE). They require an inspection-level earthquake (for shutdown) of 0.4 SSE. This level was set so that the vibratory ground motion should not induce stresses exceeding the allowable stress limits originally required for the OBE design.

The final regulation allows the value of the OBE to be set at (i) one-third or less of the SSE, where OBE requirements are satisfied without an explicit response or design analyses being performed, or (ii) a value greater than one-third of the SSE, where analysis and design are required. There are two issues the applicant should consider in selecting the value of the OBE: first, plant shutdown is required if vibratory ground motion exceeding that of the OBE occurs (discussed below in Item 6, Required Plant Shutdown), and second, the amount of analyses associated with the OBE. An applicant may determine that at one-third of the SSE level, the probability of exceeding the OBE vibratory ground motion is too high, and the cost associated with plant shutdown for inspections and testing of equipment and structures prior to

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restarting the plant is unacceptable. Therefore, the applicant may voluntarily select an OBE value at some higher fraction of the SSE to avoid plant shutdowns. However, if an applicant selects an OBE value at a fraction of the SSE higher than one-third, a suitable analysis shall be performed to demonstrate that the requirements associated with the OBE are satisfied. The design shall take into account soil-structure interaction effects and the expected duration of the vibratory ground motion. The requirement associated with the OBE is that all structures, systems, and components of the nuclear power plant necessary for continued operation without undue risk to the health and safety of the public shall remain functional and within applicable stress, strain and deformation limits when subjected to the effects of the OBE in combination with normal operating loads.

As stated, it is determined that if an OBE of one-third or less of the SSE is used, the requirements of the OBE can be satisfied without the applicant performing any explicit response analyses. In this case, the OBE serves the function of an inspection and shutdown earthquake. Some minimal design checks and the applicability of this position to seismic base isolation of buildings are discussed below. There is high confidence that, at this ground-motion level with other postulated concurrent loads, most critical structures, systems, and components will not exceed currently used design limits. This is ensured, in part, because PRA insights will be used to support a margins-type assessment of seismic events. A PRA-based seismic margins analysis will consider sequence-level High Confidence, Low Probability of Failures (HCLPFs) and fragilities for all sequences leading to core damage or containment failures up to approximately one and two-thirds the ground motion acceleration of the design basis SSE (Reference: Item II.N, Site-Specific Probabilistic Risk Assessment and Analysis of External Events, memorandum from Samuel J. Chilk to James M. Taylor, Subject: SECY-93-087—Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advance Light-Water Reactor (ALWR) Designs, dated July 21, 1993).

There are situations associated with current analyses where only the OBE is associated with the design requirements, for example, the ultimate heat sink (see Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants"). In these situations, a value expressed as a fraction of the SSE

response would be used in the analyses. Section VII of this final rule identifies existing guides that would be revised technically to maintain the existing design philosophy.

In SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advance Light-Water Reactor (ALWR) Designs," the NRC staff requested Commission approval on 42 technical and policy issues pertaining to either evolutionary LWRs, passive LWRs, or both. The issue pertaining to the elimination of the OBE is designated I.M. The NRC staff identified actions necessary for the design of structures, systems, and components when the OBE design requirement is eliminated. The NRC staff clarified that guidelines should be maintained to ensure the functionality of components, equipment, and their supports. In addition, the NRC staff clarified how certain design requirements are to be considered for buildings and structures that are currently designed for the OBE, but not the SSE. Also, the NRC staff has evaluated the effect on safety of eliminating the OBE from the design load combinations for selected structures, systems, and components and has developed proposed criteria for an analysis using only the SSE. Commission approval is documented in the Chilk to Taylor memorandum dated July 21, 1993, cited above.

More than one earthquake response analysis for a seismic base isolated nuclear power plant design may be necessary to ensure adequate performance at all earthquake levels. Decisions pertaining to the response analyses associated with base isolated facilities will be handled on a case by case basis.

6. Required Plant Shutdown

The current regulation (Section V(a)(2)) states that if vibratory ground motion exceeding that of the OBE occurs, shutdown of the nuclear power plant will be required. The supplementary information to the final regulation (published November 13, 1973; 38 FR 31279, Item 6e) includes the following statement: "A footnote has been added to § 50.36(c)(2) of 10 CFR Part 50 to assure that each power plant is aware of the limiting condition of operation which is imposed under Section V(2) of Appendix A to 10 CFR Part 100. This limitation requires that if vibratory ground motion exceeding that of the OBE occurs, shutdown of the nuclear power plant will be required. Prior to resuming operations, the licensee will be required to demonstrate to the Commission that no functional damage has occurred to those features

necessary for continued operation without undue risk to the health and safety of the public." At that time, it was the intention of the Commission to treat the OBE as a limiting condition of operation. From the statement in the Supplementary Information, the Commission directed applicants to specifically review 10 CFR Part 100 to be aware of this intention in complying with the requirements of 10 CFR 50.36. Thus, the requirement to shut down if an OBE occurs was expected to be implemented by being included among the technical specifications submitted by applicants after the adoption of Appendix A. In fact, applicants did not include OBE shutdown requirements in their technical specifications.

The final regulation treats plant shutdown associated with vibratory ground motion exceeding the OBE or significant plant damage as a condition in every operating license. A new § 50.54(ff) is added to the regulations to require a process leading to plant shutdown for licensees of nuclear power plants that comply with the earthquake engineering criteria in Paragraph IV(a)(3) of Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," to 10 CFR Part 50. Immediate shutdown could be required until it is determined that structures, systems, and components needed for safe shutdown are still functional.

Regulatory Guide 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post-Earthquake Actions," provides guidance acceptable to the NRC staff for determining whether or not vibratory ground motion exceeding the OBE ground motion or significant plant damage had occurred and the timing of nuclear power plant shutdown. The guidance is based on criteria developed by the Electric Power Research Institute (EPRI). The decision to shut down the plant should be made by the licensee within eight hours after the earthquake. The data from the seismic instrumentation, coupled with information obtained from a plant walk down, are used to make the determination of when the plant should be shut down, if it has not already been shut down by operational perturbations resulting from the seismic event. The guidance in Regulatory Guide 1.166 is based on two assumptions, first, that the nuclear power plant has operable seismic instrumentation, including the equipment and software required to process the data within four hours after an earthquake, and second, that the operator walk down inspections can be performed in approximately four to eight hours depending on the number of

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personnel conducting the inspection. The regulation also includes a provision that requires the licensee to consult with the Commission and to propose a plan for the timely, safe shutdown of the nuclear power plant if systems, structures, or components necessary for a safe shutdown or to maintain a safe shutdown are not available.

Regulatory Guide 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event," provides guidelines that are acceptable to the NRC staff for performing inspections and tests of nuclear power plant equipment and structures prior to plant restart. This guidance is also based on EPRI reports. Prior to resuming operations, the licensee must demonstrate to the Commission that no functional damage has occurred to those features necessary for continued operation without undue risk to the health and safety of the public. The results of post-shutdown inspections, operability checks, and surveillance tests must be documented in written reports and submitted to the Director, Office of Nuclear Reactor Regulation. The licensee shall not resume operation until authorized to do so by the Director, Office of Nuclear Reactor Regulation.

7. Clarify Interpretations

Section 100.23 resolves questions of interpretation. As an example, definitions and required investigations stated in the final regulation do not contain the phrases in Appendix A to Part 100 that were more applicable to only the western part of the United States.

The institutional definition for "safety-related structures, systems, and components" is drawn from Appendix A to Part 100 under III(c) and VI(a). With the relocation of the earthquake engineering criteria to Appendix S to Part 50 and the relocation and modification to dose guidelines in § 50.34(a)(1), the definition of safety-related structures, systems, and components is included in Part 50 definitions with references to both the Part 100 and Part 50 dose guidelines.

VI. Related Regulatory Guides and Standard Review Plan Sections

The NRC is developing the following regulatory guides and standard review plan sections to provide prospective licensees with the necessary guidance for implementing the final regulation. The notice of availability for these materials will be published in a later issue of the **Federal Register**.

1. Regulatory Guide 1.165, "Identification and Characterization of Seismic Sources and Determination of

Shutdown Earthquake Ground Motions." The guide provides general guidance and recommendations, describes acceptable procedures and provides a list of references that present acceptable methodologies to identify and characterize capable tectonic sources and seismogenic sources. Section V.B.3 of this rule describes the key elements.

2. Regulatory Guide 1.12, Revision 2, "Nuclear Power Plant Instrumentation for Earthquakes." The guide describes seismic instrumentation type and location, operability, characteristics, installation, actuation, and maintenance that are acceptable to the NRC staff.

3. Regulatory Guide 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post-Earthquake Actions." The guide provides guidelines that are acceptable to the NRC staff for a timely evaluation of the recorded seismic instrumentation data and to determine whether or not plant shutdown is required.

4. Regulatory Guide 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event." The guide provides guidelines that are acceptable to the NRC staff for performing inspections and tests of nuclear power plant equipment and structures prior to restart of a plant that has been shut down because of a seismic event.

5. Standard Review Plan Section 2.5.1, Revision 3, "Basic Geologic and Seismic Information." This SRP Section describes procedures to assess the adequacy of the geologic and seismic information cited in support of the applicant's conclusions concerning the suitability of the plant site.

6. Standard Review Plan Section 2.5.2, Revision 3 "Vibratory Ground Motion." This SRP Section describes procedures to assess the ground motion potential of seismic sources at the site and to assess the adequacy of the SSE.

7. Standard Review Plan Section 2.5.3, Revision 3, "Surface Faulting." This SRP Section describes procedures to assess the adequacy of the applicant's submittal related to the existence of a potential for surface faulting affecting the site.

8. Regulatory Guide 4.7, Revision 2, "General Site Suitability Criteria for Nuclear Power Plants." This guide discusses the major site characteristics related to public health and safety and environmental issues that the NRC staff considers in determining the suitability of sites.

VII. Future Regulatory Action

Several existing regulatory guides will be revised to incorporate editorial changes or maintain the existing design

or analysis philosophy. These guides will be issued as final guides without public comment subsequent to the publication of the final regulations.

The following regulatory guides will be revised to incorporate editorial changes, for example to reference new sections to Part 100 or Appendix S to Part 50. No technical changes will be made in these regulatory guides.

1. 1.57, "Design Limits and Loading Combinations for Metal Primary Reactor Containment System Components."

2. 1.59, "Design Basis Floods for Nuclear Power Plants."

3. 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants."

4. 1.83, "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes."

5. 1.92, "Combining Modal Responses and Spatial Components in Seismic Response Analysis."

6. 1.102, "Flood Protection for Nuclear Power Plants."

7. 1.121, "Bases for Plugging Degraded PWR Steam Generator Tubes."

8. 1.122, "Development of Floor Design Response Spectra for Seismic Design of Floor-Supported Equipment or Components."

The following regulatory guides will be revised to update the design or analysis philosophy, for example, to change OBE to a fraction of the SSE:

1. 1.3, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Boiling Water Reactors."

2. 1.4, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Pressurized Water Reactors."

3. 1.27, "Ultimate Heat Sink for Nuclear Power Plants."

4. 1.100, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants."

5. 1.124, "Service Limits and Loading Combinations for Class 1 Linear-Type Component Supports."

6. 1.130, "Service Limits and Loading Combinations for Class 1 Plate-and-Shell-Type Component Supports."

7. 1.132, "Site Investigations for Foundations of Nuclear Power Plants."

8. 1.138, "Laboratory Investigations of Soils for Engineering Analysis and Design of Nuclear Power Plants."

9. 1.142, "Safety-Related Concrete Structures for Nuclear Power Plants (Other than Reactor Vessels and Containments)."

10. 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants."

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Minor and conforming changes to other Regulatory Guides and standard review plan sections as a result of changes in the nonseismic criteria are also planned. If substantive changes are made during the revisions, the applicable guides will be issued for public comment as draft guides.

VIII. Referenced Documents

An interested person may examine or obtain copies of the documents referenced in this rule as set out below.

Copies of NUREG-0625, NUREG-1061, NUREG-1150, NUREG-1451, NUREG-1462, NUREG-1503, and NUREG/CR-2239 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, DC 20402-9328. Copies also are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy also is available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Copies of issued regulatory guides may be purchased from the Government Printing Office (GPO) at the current GPO price. Information on current GPO prices may be obtained by contacting the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328. Issued guides also may be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5826 Port Royal Road, Springfield, VA 22161.

SECY 79-300, SECY 90-016, SECY 93-087, and WASH-1400 are available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

IX. Summary of Comments on the Proposed Regulations

A. Reactor Siting Criteria (Nonseismic)

Eight organizations or individuals commented on the nonseismic aspects of the second proposed revision. The first proposed revision issued for comment in October 20, 1992, (57 FR 47802) elicited strong comments in regard to proposed numerical values of population density and a minimum distance to the exclusion area boundary (EAB) in the rule. The second proposed revision (October 17, 1994; 59 FR 52255) would delete these from the rule by providing guidance on population density in a Regulatory Guide and determining the distance to the EAB and LPZ by use of source term and dose

calculations. The rule would contain basic site criteria, without any numerical values.

Several commentors representing the nuclear industry and international nuclear organizations stated that the second proposed revision was a significant improvement over the first proposed revision, while the only public interest group commented that the NRC had retreated from decoupling siting and design in response to the comments of foreign entities.

Most comments on the second proposed revision centered on the use of total effective dose equivalent (TEDE), the proposed single numerical dose acceptance criterion of 25 rem TEDE, the evaluation of the maximum dose in any two-hour period, and the question of whether an organ capping dose should be adopted.

Virtually all commenters supported the concept of TEDE and its use. However, there were differing views on the proposed numerical dose of 25 rem and the proposed use of the maximum two-hour period to evaluate the dose. Virtually all industry commenters felt that the proposed numerical value of 25 rem TEDE was too low and that it represented a "ratchet" since the use of the current dose criteria plus organ weighting factors would suggest a value of 34 rem TEDE. In addition, all industry commenters believed the "sliding" two-hour window for dose evaluation to be confusing, illogical and inappropriate. They favored a rule that was based upon a two hour period after the onset of fission product release, similar in concept to the existing rule. All industry commenters opposed the use of an organ capping dose. The only public interest group that commented did not object to the use of TEDE, favored the proposed dose value of 25 rem, and supported an organ capping dose.

B. Seismic and Earthquake Engineering Criteria

Seven letters were received addressing either the regulations or both the regulations and the draft guidance documents identified in Section VI (except DG-4003). An additional five letters were received addressing only the guidance documents, for a total of twelve comment letters. A document, "Resolution of Public Comments on the Proposed Seismic and Earthquake Engineering Criteria for Nuclear Power Plants," is available explaining the NRC's disposition of the comments received on the regulations. A copy of this document has been placed in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington,

DC. Single copies are available from Dr. Andrew J. Murphy, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6010. A second document, "Resolution of Public Comments on Draft Regulatory Guides and Standard Review Plan Sections Pertaining to the Proposed Seismic and Earthquake Engineering Criteria for Nuclear Power Plants," will explain the NRC's disposition of the comments received on the guidance documents. The **Federal Register** notice announcing the availability of the guidance documents will also discuss how to obtain copies of the comment resolution document.

A summary of the major comments on the proposed regulations follows:

Section III, Genesis (Application)

Comment: The Department of Energy (Office of Civilian Radioactive Waste Management), requests an explicit statement on whether or not § 100.23 applies to the Mined Geologic Disposal System (MGDS) and a Monitored Retrievable Storage (MRS) facility. The NRC has noted in NUREG-1451, "Staff Technical Position on Investigations to Identify Fault Displacement Hazards and Seismic Hazards at a Geologic Repository," that Appendix A to 10 CFR Part 100 does not apply to a geologic repository. NUREG-1451 also notes that the contemplated revisions to Part 100 would also not be applicable to a geologic repository. Section 72.102(b) requires that, for an MRS located west of the Rocky Mountain front or in areas of known potential seismic activity in the east, the seismicity be evaluated by the techniques of Appendix A to 10 CFR Part 100.

Response: Although Appendix A to 10 CFR Part 100 is titled "Seismic and Geologic Siting Criteria for Nuclear Power Plants," it is also referenced in two other parts of the regulation. They are (1) Part 40, "Domestic Licensing of Source Material," Appendix A, "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Waste Produced by the Extraction or Concentration of Source Material from Ores Processed Primarily for Their Source Material Content," Section I, Criterion 4(e), and (2) Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," Paragraphs (a)(2), (b) and (f)(1) of § 72.102.

The referenced applicability of § 100.23 to other than power reactors, if considered appropriate by the NRC, would be a separate rulemaking. That rulemaking would clearly state the

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applicability of § 100.23 to an MRS or other facility. In addition, NUREG-1451 will remain the NRC staff technical position on seismic siting issues pertaining to an MGDS until it is superseded through a rulemaking, revision of NUREG-1451, or other appropriate mechanism.

Section V(B)(5), "Value of the Operating Basis Earthquake Ground Motion (OBE) and Required OBE Analysis."

Comment: One commenter, ABB Combustion Engineering Nuclear Systems, specifically stated that they agree with the NRC's proposal to not require explicit design analysis of the OBE if its peak acceleration is less than one-third of the Safe Shutdown Earthquake Ground Motion (SSE). The only negative comments, from G.C. Slagis Associates, stated that the proposed rule in the area of required OBE analysis is not sound, not technically justified, and not appropriate for the design of pressure-retaining components. The following are specific comments (limited to the design of pressure-retaining components to the ASME Boiler and Pressure Vessel Section III rules) that pertain to the supplemental information to the proposed regulations, item V(B)(5), "Value of the Operating Basis Earthquake Ground Motion (OBE) and Required OBE Analysis."

(1) *Comment:* Disagrees with the statement in SECY-79-300 that design for a single limiting event and inspection and evaluation for earthquakes in excess of some specified limit may be the most sound regulatory approach. It is not feasible to inspect for cyclic damage to all the pressure-retaining components. Visually inspecting for permanent deformation, or leakage, or failed component supports is certainly not adequate to determine cyclic damage.

Response: The NRC agrees. Postearthquake inspection and evaluation guidance is described in Regulatory Guide 1.167 (Draft was DG-1035), "Restart of a Nuclear Power Plant Shut Down by an Seismic Event." The guidance is not limited to visual inspections; it includes inspections, tests, and analyses including fatigue analysis.

(2) *Comment:* Disagrees with the NRC statement in SECY-090-016 that the OBE should not control design. There is a problem with the present requirements. Requiring design for five OBE events at one-half SSE is unrealistic for most (all?) sites and requires an excessive and unnecessary number of seismic supports. The solution is to properly define the OBE

magnitude and the number of events expected during the life of the plant and to require design for that loading. OBE may or may not control the design. But you cannot assume, before you have the seismicity defined and before you have a component design, that OBE will not govern the design.

Response: The NRC has concluded that design requirements based on an estimated OBE magnitude at the plant site and the number of events expected during the plant life will lead to low design values that will not control the design, thus resulting in unnecessary analyses.

(3) *Comment:* It is not technically justified to assume that Section III components will remain within applicable stress limits (Level B limits) at one-third the SSE. The Section III acceptance criteria for Level D (for an SSE) is completely different than that for Level B (for an OBE). The Level D criteria is based on surviving the extremely-low probability SSE load. Gross structural deformations are possible, and it is expected that the component will have to be replaced. Cyclic effects are not considered. The cyclic effects of the repeated earthquakes have to be considered in the design of the component to ensure pressure boundary integrity throughout the life of the component, especially if the SSE can occur after the lower level earthquakes.

Response: In SECY-93-087, Issue I.M, "Elimination of Operating-Basis Earthquake," the NRC recognizes that a designer of piping systems considers the effects of primary and secondary stresses and evaluates fatigue caused by repeated cycles of loading. Primary stresses are induced by the inertial effects of vibratory motion. The relative motion of anchor points induces secondary stresses. The repeating seismic stress cycles induce cyclic effects (fatigue). However, after reviewing these aspects, the NRC concludes that, for primary stresses, if the OBE is established at one-third the SSE, the SSE load combinations control the piping design when the earthquake contribution dominates the load combination. Therefore, the NRC concludes that eliminating the OBE piping stress load combination for primary stresses in piping systems will not significantly reduce existing safety margins.

Eliminating the OBE will, however, directly affect the current methods used to evaluate the adequacy of cyclic and secondary stress effects in the piping design. Eliminating the OBE from the load combination could cause uncertainty in evaluating the cyclic

(fatigue) effects of earthquake-induced motions in piping systems and the relative motion effects of piping anchored to equipment and structures at various elevations because both of these effects are currently evaluated only for OBE loadings. Accordingly, to account for earthquake cycles in the fatigue analysis of piping systems, the staff proposes to develop guidelines for selecting a number of SSE cycles at a fraction of the peak amplitude of the SSE. These guidelines will provide a level of fatigue design for the piping equivalent to that currently provided in Standard Review Plan Section 3.9.2.

Positions pertaining to the elimination of the OBE were proposed in SECY-93-087. Commission approval is documented in a memorandum from Samuel J. Chilk to James M. Taylor, Subject: SECY-93-087—Policy, Technical and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs, dated July 21, 1993.

(4) *Comment:* There is one major flaw in the "SSE only" design approach. The equipment designed for SSE is limited to the equipment necessary to assure the integrity of the reactor coolant pressure boundary, to shutdown the reactor, and to prevent or mitigate accident consequences. The equipment designed for SSE is only part of the equipment "necessary for continued operation without undue risk to the health and safety of the public." Hence, by this rule, it is possible that some equipment necessary for continued operation will not be designed for SSE or OBE effects.

Response: The NRC does not agree that the design approach is flawed. It is not possible that some equipment necessary for continued safe operation will not be designed for SSE or OBE effects. General Design Criterion 2, "Design Bases for Protection Against Natural Phenomena," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires that nuclear power plant structures, systems, and components important to safety be designed to withstand the effects of earthquakes without loss of capability to perform their safety functions. The criteria in Appendix S to 10 CFR Part 50 implement General Design Criterion 2 insofar as it requires structures, systems, and components important to safety to withstand the effects of earthquakes. Regulatory Guide 1.29, "Seismic Design Classification," describes a method acceptable to the NRC for identifying and classifying those features of light-water-cooled nuclear power plants that should be designed to withstand the effects of the SSE. Currently,

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components which are designed for OBE only include components such as waste holdup tanks. As noted in Section VII, Future Regulatory Actions, regulatory guides related to these components will be revised to provide alternative design requirements.

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The Nuclear Energy Institute (NEI) congratulated the NRC staff for carefully considering and responding to the voluminous and complex comments that were provided on the earlier proposed rulemaking package (October 20, 1992; 57 FR 47802) and considered that the seismic portion of the proposed rulemaking package is nearing maturity and with the inclusion of industry's comments (which were principally on the guidance documents), has the potential to satisfy the objectives of predictable licensing and stable regulations.

Both NEI and Westinghouse Electric Corporation support the regulation format, that is, prescriptive guidance is located in regulatory guides or standard review plan sections and not the regulation.

NEI and Westinghouse Electric Corporation support the removal of the requirement from the first proposed rulemaking (57 FR 47802) that both deterministic and probabilistic evaluations must be conducted to determine site suitability and seismic design requirements for the site. [Note: the commenters do not agree with the NRC staff's deterministic check of the seismic sources and parameters used in the LLNL and EPRI probabilistic seismic hazard analyses (Regulatory Guide 1.165, draft was DG-1032). Also, they do not support the NRC staff's deterministic check of the applicants submittal (SRP Section 2.5.2). These items are addressed in the document pertaining to comment resolution of the draft regulatory guides and standard review plan sections.]

Comment: NEI, Westinghouse Electric Corporation, and Yankee Atomic Electric Corporation recommend that the regulation should state that for existing sites east of the Rocky Mountain Front (east of approximately 105° west longitude), a 0.3g standardized design level is acceptable at these sites given confirmatory foundations evaluations [Regulatory Guide 1.132, but not the geologic, geophysical, seismological investigations in Regulatory Guide 1.165].

Response: The NRC has determined that the use of a spectral shape anchored to 0.3g peak ground acceleration as a standardized design level would be

appropriate for existing central and eastern U.S. sites based on the current state of knowledge. However, as new information becomes available it may not be appropriate for future licensing decisions. Pertinent information such as that described in Regulatory Guide 1.165 (Draft was DG-1032) is needed to make that assessment. Therefore, it is not appropriate to codify the request.

Comment: NEI recommended a rewording of Paragraph (a), Applicability. Although unlikely, an applicant for an operating license already holding a construction permit may elect to apply the amended methodology and criteria in Subpart B to Part 100.

Response: The NRC will address this request on a case-by-case basis rather than through a generic change to the regulations. This situation pertains to a limited number of facilities in various stages of construction. Some of the issues that must be addressed by the applicant and NRC during the operating license review include differences between the design bases derived from the current and amended regulations (Appendix A to Part 100 and § 100.23, respectively), and earthquake engineering criteria such as, OBE design requirements and OBE shutdown requirements.

Appendix S to 10 CFR Part 50

Support for the NRC position pertaining to the elimination of the Operating Basis Earthquake Ground Motion (OBE) response analyses has been documented in various NRC publications such as SECY-79-300, SECY-90-016, SECY-93-087, and NUREG-1061. The final safety evaluation reports related to the certification of the System 80+ and the Advanced Boiling Water Reactor design (NUREG-1462 and NUREG-1503, respectively) have already adopted the single earthquake design philosophy. In addition, similar activities are being done in foreign countries, for instance, Germany. (Additional discussion is provided in Section V(B)(5) of this rule).

Comment: The American Society of Civil Engineers (ASCE) recommended that the seismic design and engineering criteria of ASCE Standard 4, "Seismic Analysis of Safety-Related Nuclear Structures and Commentary on Standard for Seismic Analysis of Safety-Related Nuclear Structures," be incorporated by reference into Appendix S to 10 CFR Part 50.

Response: The Commission has determined that new regulations will be more streamlined and contain only basic requirements with guidance being provided in regulatory guides and, to

some extent, in standard review plan sections. Both the NRC and industry have experienced difficulties in applying prescriptive regulations such as Appendix A to 10 CFR Part 100 because they inhibit the use of needed latitude in judgment. Therefore, it is common NRC practice not to reference publications such as ASCE Standard 4 (an analysis, not design standard) in its regulations. Rather, publications such as ASCE Standard 4 are cited in regulatory guides and standard review plan sections. ASCE Standard 4 is cited in the 1989 revision of Standard Review Plan Sections 3.7.1, 3.7.2, and 3.7.3.

Comment: The Department of Energy stated that the required consideration of aftershocks in Paragraph IV(B), Surface Deformation, is confusing and recommended that it be deleted.

Response: The NRC agrees. The reference to aftershocks in Paragraph IV(b) has been deleted. Paragraphs VI(a), Safe Shutdown Earthquake, and VI(B)(3) of Appendix A to Part 100 contain the phrase "including aftershocks." The "including aftershocks" phrase was removed from the Safe Shutdown Earthquake Ground Motion requirements in the proposed regulation. The recommended change will make Paragraphs IV(a)(1), "Safe Shutdown Earthquake Ground Motion," and IV(b), "Surface Deformation, of Appendix S to 10 CFR Part 50 consistent.

X. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996 the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

XI. Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this regulation is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required.

The revisions associated with the reactor siting criteria in 10 CFR Part 100 and the relocation of the plant design requirements from 10 CFR Part 100 to 10 CFR Part 50 have been evaluated against the current requirements. The Commission has concluded that relocating the requirement for a dose

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calculation to Part 50 and adding more specific site criteria to Part 100 does not decrease the protection of public health and safety over the current regulations. The amendments do not affect nonradiological plant effluents and have no other environmental impact.

The addition of § 100.23 to 10 CFR Part 100, and the addition of Appendix S to 10 CFR Part 50, will not change the radiological environmental impact offsite. Onsite occupational radiation exposure associated with inspection and maintenance will not change. These activities are principally associated with baseline inspections of structures, equipment, and piping, and with maintenance of seismic instrumentation. Baseline inspections are needed to differentiate between pre-existing conditions at the nuclear power plant and earthquake related damage. The structures, equipment and piping selected for these inspections are those routinely examined by plant operators during normal plant walkdowns and inspections. Routine maintenance of seismic instrumentation ensures its operability during earthquakes. The location of the seismic instrumentation is similar to that in the existing nuclear power plants. The amendments do not affect nonradiological plant effluents and have no other environmental impact.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Dr. Andrew J. Murphy, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6010.

XII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval numbers 3150-0011 and 3150-0093.

The public reporting burden for this collection of information is estimated to average 800,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including

suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail to BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011 and 3150-0093), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

XIII. Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. Interested persons may examine a copy of the regulatory analysis at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis are available from Dr. Andrew J. Murphy, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6010.

XIV. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this regulation does not have a significant economic impact on a substantial number of small entities. This regulation affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards established by the NRC (April 11, 1995; 60 FR 18344).

XV. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this regulation, and, therefore, a backfit analysis is not required for this regulation because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1). The regulation would apply only to applicants for future nuclear power plant construction permits, preliminary design approval, final design approval, manufacturing licenses, early site reviews, operating licenses, and combined operating licenses.

List of Subjects

10 CFR Part 21

Nuclear power plants and reactors, Penalties, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

10 CFR Part 54

Administrative practice and procedure, Age-related degradation, Backfitting, Classified information, Criminal penalties, Environmental, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 100

Nuclear power plants and reactors, Reactor siting criteria.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 21, 50, 52, 54, and 100:

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
110**

**EXPORT AND IMPORT OF NUCLEAR EQUIPMENT
AND MATERIAL**

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52 FR 9649
Published 3/26/87
Effective 3/25/87

Implementation of the Convention on
the Physical Protection of Nuclear
Material

See Part 73 Statements of Consideration

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of
Information

See Part 2 Statements of Consideration

53 FR 4109
Published 2/12/88
Effective 2/12/88

Relocation of NRC Offices—NMSS, OI
and GPA

See Part 30 Statements of Consideration

53 FR 17915
Published 5/19/88
Effective 5/19/88

Addresses for Personal Delivery of
Communications

See Part 1 Statements of Consideration

53 FR 19240
Published 5/27/88
Effective 7/26/88

Retention Periods for Records

See Part 4 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes

See Part 1 Statements of Consideration

55 FR 30449
Published 7/26/90
Effective 7/26/90

10 CFR Part 110

RIN 3150-AD59

Export of Components for Use in
Gaseous Diffusion Enrichment Plants

AGENCY: U.S. Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its export licensing regulations to clarify the coverage of specially designed or prepared nuclear assemblies and components for use in gaseous diffusion enrichment plants. This action is necessary to implement the decision of the multilateral Non-Proliferation Treaty Nuclear Exporters Group (Zangger Committee) to add new definitions to its international export control "Trigger List" covering gaseous diffusion enrichment components. The NRC also is restructuring portions of its regulations in order to present the provision in a clear manner.

EFFECTIVE DATE: July 28, 1990.

FOR FURTHER INFORMATION CONTACT: Elaine O. Hemby, Office of Governmental and Public Affairs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-0341, or Joanna M. Becker, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-1740.

SUPPLEMENTARY INFORMATION: During the past several years, the United States and other nuclear supplier governments have engaged in discussions within the framework of the International Atomic Energy Agency's (IAEA) Zangger Committee to clarify the coverage of the international nuclear export control "Trigger List" for specially designed or prepared assemblies and components for use in gaseous diffusion enrichment plants. The purpose of the clarification is to improve the administration of export controls over these items. Recently Zangger Committee members have agreed to specify certain additional components in its control list for these nuclear components.

Currently, all specially designed or prepared gaseous diffusion enrichment assemblies and components are subject in the United States to export licensing by the NRC under its export/import licensing regulations provisions of 10 CFR 110.8(b). As a result of the Zangger Committee's action, the Department of

State, as the responsible U.S. Government agency for undertaking the Zangger Committee negotiations, has requested the Commission to implement the Zangger Committee's decision by publishing an interpretative rule in the *Federal Register* listing the new specified assemblies and components in 10 CFR part 110.

In support of the decision to add new definitions of gaseous diffusion enrichment components, the Zangger Committee also prepared an introductory note which further clarifies the basis for exercising export controls over the equipment specified. This note reads as follows:

Note—Gaseous Diffusion Trigger List

In the gaseous diffusion method of uranium isotope separation, the main technological assembly is a special porous gaseous diffusion barrier, heat exchanger for cooling the gas (which is heated by the process of compression), seal valves and control valves, and pipelines. Inasmuch as gaseous diffusion technology uses uranium hexafluoride (UF₆), all equipment, pipeline and instrumentation surfaces (that come in contact with the gas) must be made of materials that remain stable in contact with UF₆. A gaseous diffusion facility requires a number of these assemblies, so that quantities can provide an important indication of end use.

The auxiliary systems, equipment and components for gaseous diffusion enrichment plants are the systems of plant needed to feed UF₆ to the gaseous diffusion assembly to link the individual assemblies to each other to form cascades (or stages) to allow for progressively higher enrichments and to extract the "product" and "tails" UF₆ from the diffusion cascades. Because of the high inertial properties of diffusion cascades, any interruption in their operation, and especially their shut-down, leads to serious consequences. Therefore, a strict and constant maintenance of vacuum in all technological systems, automatic protection from accidents, and precise automated regulation of the gas flow is of importance in a gaseous diffusion plant. All this leads to a need to equip the plant with a large number of special measuring, regulating, and controlling systems.

Normally UF₆ is evaporated from cylinders placed within autoclaves and is distributed in gaseous form to the entry point by way of cascade header pipework. The "product" and "tails" UF₆ gaseous streams flowing from exit points are passed by way of cascade header pipework to either cold traps or to

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compression stations where the UF₆ gas is liquified prior to onward transfer into suitable containers for transportation or storage. Because a gaseous diffusion enrichment plant consists of a large number of gaseous diffusion assemblies arranged in cascades, there are many kilometers of cascade header pipework, incorporating thousands of welds with substantial amounts of repetition of layout. The equipment, components and piping systems are fabricated to very high vacuum and cleanliness standards. The items listed below either come into direct contact with the UF₆ process gas or directly control the flow within the cascade. All surfaces which come into contact with the process gas are wholly made of, or lined with, UF₆ resistant materials.

For the purposes of this annex the materials resistant to corrosion by UF₆ include stainless steel, aluminum, aluminum alloys, aluminum oxide, nickel or alloys containing 60 percent or more nickel, and UF₆-resistant fully fluorinated hydrocarbon polymers.

Waiver of Notice and Comment

Because this amendment involves a foreign affairs function of the United States, the notice and comment provisions of the Administrative Procedure Act do not apply pursuant to 5 U.S.C. 553(a)(1). The amendments are effective upon publication in the *Federal Register*. Good cause exists to dispense with the usual 30-day delay in the effective date because the State Department has requested expeditious action on this amendment in order to meet international commitments.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule in part 110 is the type of action described as a categorical exclusion under 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget under approval number 3150-0036.

Regulatory Analysis

NRC already controls exports of gaseous diffusion enrichment plants and specially designed assemblies and components thereof. The amendments are necessary in order for the nuclear export controls of the United States to be consistent with United States supported international nuclear export control guidelines. The clarification will clearly reflect the nature of the enhanced multilateral export controls of

the United States for this category of equipment. No other NRC regulatory actions or alternative actions by other agencies address this matter nor are any alternative courses of action feasible. While the amendments impact all potential exporters of gaseous diffusion enrichment components, they are not expected to result in any increased regulatory burden since they essentially clarify the scope of existing NRC export licensing controls. To date, NRC has neither received an application to export any gaseous enrichment components nor are any such applications expected in the foreseeable future.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The final rule is an interpretative rule only and, as such, does not, of itself, impose additional obligations on the public.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, therefore, a backfit analysis is not required for this final rule because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 110

Administrative practice and procedures, Classified information, Criminal penalty, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 110.

55 FR 34518

Published 8/23/90

Effective 7/26/90

10 CFR PART 110

RIN 3150-AD59

Export of Components for Use in Gaseous Diffusion Enrichment Plants: Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule: Correction.

SUMMARY: In the *Federal Register* on July 26, 1990 (55 FR 30449), the Nuclear

Regulatory Commission issued a final rule which clarifies the coverage of specially designed or prepared nuclear assemblies and components for use in a gaseous diffusion enrichment plant. As part of the final rule, portions of NRC's export regulations were restructured. However, the amendments necessary to change the references to these restructured provisions were inadvertently omitted. As a result, parts of the export licensing regulations now contain erroneous references. This action is necessary to correct the inconsistent references and reflect the restructured portions of the export regulations.

EFFECTIVE DATE: July 26, 1990.

FOR FURTHER INFORMATION CONTACT:

Elaine O. Hemby, Office of Governmental and Public Affairs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-0341, or Joanna M. Becker, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-1740.

List of Subjects in 10 CFR Part 110

Administrative practice and procedures, Classified information, Criminal penalty, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the summary and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 110.

55 FR 51401

Published 12/14/90.

*Miscellaneous Amendments;
Correction*

See Part 2 Statements of Consideration

56 FR 24682

Published 5/31/91.

Effective 5/31/91.

10 CFR Part 110

RIN 3150-AD 95

Return of Topaz Reactor to Soviet Union

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

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SUMMARY: The Nuclear Regulatory Commission is amending its regulations pertaining to import and export of nuclear equipment and material to permit the return of the Topaz II Reactor System to the Union of Soviet Socialist Republics (USSR). The Topaz II was imported into the United States pursuant to an import license issued by the NRC on January 4, 1991. This rulemaking action permits the export of Topaz II, which is owned by the Government of the USSR, without issuance of a license by the NRC.

EFFECTIVE DATE: May 31, 1991.

FOR FURTHER INFORMATION CONTACT: Joseph F. Scinto or Joanna M. Becker, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone (301) 492-1740.

SUPPLEMENTARY INFORMATION: In January 1991, the Topaz II Reactor System, a space reactor developed and owned by the USSR, was imported into the United States under an NRC import license, at the behest of the Department of Defense (DOD), for exhibit at a Space Nuclear Power Symposium in Albuquerque, New Mexico, and inspection and study by DOD. The reactor was imported without fuel, coolant or moderator and is non-operating. It is possessed in the United States by Sandia National Laboratory, a prime contractor of the Department of Energy exempt from facility license requirements by NRC regulations in 10 CFR 50.11.

The Topaz II Reactor System, while in the United States, is subject to the provisions of those sections of the Atomic Energy Act applicable to utilization facilities, including sections 101 and 104.

Section 101 reads as follows:

Sec. 101. Licensed Required.—It shall be unlawful, except as provided in section 91, for any person within the United States to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, use, import, or export any utilization or production facility except under and in accordance with a license issued by the Commission pursuant to section 103 or 104.

Section 104d. provides, in pertinent part:

Sec. 104 *Medical Therapy and Research and Development*

d. No license under this section may be given to any person for activities which are not under or within the jurisdiction of the United States, except for the export of production or utilization facilities under terms of an agreement for cooperation arranged pursuant to section 123 or except under the provisions of section 109. * * *

Section 11.cc. of the Atomic Energy Act of 1954, as amended, defines "utilization facility", in pertinent part, as

Any equipment or device, except an atomic weapon, determined by rule of the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such a manner as to affect the health and safety of the public, or peculiarly adapted for making use of atomic energy in such quantities as to be of significance to the common defense and security or in a manner as to affect the health and safety of the public. * * *

Commission regulations in 10 CFR 50.2 define "utilization facility" as

Any nuclear reactor other than one designed or used primarily for the formation of plutonium or U-233.

Commission regulations in 10 CFR 110.2 define "utilization facility" as

Any nuclear reactor, "other than one that is a production facility, and the following major components of a nuclear reactor * * *

Although presently unfueled, the Topaz II Reactor is a reactor peculiarly adapted to making use of atomic energy and was imported under NRC import license No. IR 90002, issued January 4, 1991. This license contained a condition to the effect that it would "become effective only upon written acknowledgement, by an authorized representative of the Union of Soviet Socialist Republics, that any export from the United States of the TOPAZ II Reactor System must meet the requirements of the U.S. Atomic Energy Act of 1954, as amended. Under the law, at present, these requirements include the need for an Agreement for Cooperation in the Peaceful Uses of Atomic Energy." The authorized representative of the USSR acknowledged this condition. There is currently no such Agreement for Cooperation. However, the Soviet agency which developed and owns the Topaz II Reactor System desires its return to the Soviet Union.

Although capable of making use of special nuclear material and peculiarly adapted for making use of atomic energy, taking into account the absence of fuel, moderator or coolant, the intended short stay and limited use as a model for exhibition purposes in the United States, and its return in the near future to the country of origin, the Commission has determined that, in connection with the export of the device, the Topaz II Reactor System imported under NRC License No. IR90002 is not a "utilization facility" and is amending the definition of that term in 10 CFR 110.2. Thus, this device may

be exported without issuance of a Commission export license.

Since this matter involves a device which is the property of the Soviet Government transferred for exhibition purposes to the Department of Energy and involves a matter of interest to the Department of Defense and the Department of State, the Commission has determined that this amendment involves a foreign affairs function of the United States. Thus, the notice and comment provisions of the Administrative Procedure Act do not apply, pursuant to 5 U.S.C. 553(a)(1).

Environmental Impact: Categorical Exclusion

The NRC has determined that, pursuant to §§ 51.10 and 51.22(c)(1) of this chapter, the amendments to part 110 which follow require neither an environmental impact statement nor an environmental assessment.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget under approval number 3150-0036.

Regulatory Analysis

Adoption of these amendments is necessary in order to enable return of the Topaz II Reactor System to the Soviet Union. No other NRC regulatory actions or alternative actions by other agencies, to the best of the Commission's knowledge, address this matter nor, in view of the desired time frame, are any alternative courses of action feasible. It is not expected to result in any increased regulatory burden.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The final rule does not impose additional obligations on the public.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, therefore, a backfit analysis is not required for this final rule because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

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List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalty, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 110.

56 FR 38335
Published 8/13/91
Effective 8/13/91

10 CFR Part 110

RIN 3150-AD99

Imports From South Africa

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to the import of source material or special nuclear material from South Africa to permit uranium manufactured or produced in South Africa to be imported into the United States under general license. This action is being taken to conform the Commission's regulations to Executive Order 12769, issued by the President on July 10, 1991, which among other things, terminates the prohibition on nuclear trade with South Africa in

section 309 and 311 of the Comprehensive Anti-Apartheid Act of 1986.

EFFECTIVE DATE: August 13, 1991.

FOR FURTHER INFORMATION CONTACT: Ronald D. Hauber, Assistant Director for Exports, Security and Safety Cooperation, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 492-0344.

SUPPLEMENTARY INFORMATION:

Background

The Comprehensive Anti-Apartheid Act of 1986 (the Act), Public Law 99-440, was enacted on October 2, 1986 to establish a framework to guide the efforts of the United States to help end the apartheid system in South Africa and to assist in the establishment of a nonracial, democratic form of government in that country. The Act imposed a wide range of measures against South Africa to undermine apartheid, including a ban on the importation of uranium ore and oxide "produced or manufactured" in South Africa. Section 309(a) of the Act (22 U.S.C. 5059) prohibited the importation into the United States of uranium ore and uranium oxide that is produced or manufactured in South Africa.

The NRC, which has independent regulatory authority under the Atomic Energy Act over the import of uranium, amended its regulations in 1986 to conform with the requirements of the Act and to ensure that its regulations were consistent with the provisions of the regulations of the Treasury Department (51 FR 47207; Dec. 31, 1986), which was delegated authority in the Executive Branch to implement the Act's provisions on the importation of uranium (section 309(a)). The amendment deleted the Commission's general license in 10 CFR 110.27 with respect to the import of any uranium of South African origin. Before the amendment, NRC's import regulations in § 110.27 had permitted a person to import byproduct material or unirradiated source or special nuclear material, including uranium ore and uranium oxide, from any country under general license if the consignee in the United States was authorized to possess the material.

Section 311 of the Act (22 U.S.C. 5061) provides that the conditions specified in title 3 (i.e., the ban on imports of uranium from South Africa) shall terminate when the President determines, and so reports to the Speaker of the House of Representatives and the Chairman of the Committee on

Foreign Relations of the Senate that the Government of South Africa has taken all of the actions specified in section 311(a) of the Act, namely:

- (1) Released all persons persecuted for their political beliefs or detained unduly without trial and Nelson Mandela from prison;
- (2) Repealed the state of emergency in effect on the date of enactment of the Act and released all detainees held under such state of emergency;
- (3) Unbanned democratic political parties and permitted the free exercise by South Africans of all races of the right to form political parties, express political opinions and otherwise participate in the political process;
- (4) Repealed the Group Areas Act and the Population Registration Act and instituted no other measures with the same purposes; and
- (5) Agreed to enter into good faith negotiations with truly representative members of the black majority without preconditions.

The President, by Executive Order 12769 dated July 10, 1991, has concluded that the Government of South Africa has taken all of the steps described, thus satisfying the specified conditions in section 311 of the Act. Therefore, title 3 of the Act has been terminated, including the ban on the import of uranium from South Africa. The President has directed all agencies affected by this determination to take all necessary steps to comply with the Executive Order, effective immediately.

Commission Action on the Executive Order

To conform with the President's determination, the Commission has reinstated the pre-1986 formulation of its regulations in § 110.27 to permit a person to import byproduct material, or unirradiated source or special nuclear material including uranium ore and uranium oxide, from any country under general license if the consignee in the United States is authorized to possess the material. Accordingly, uranium manufactured or produced in South Africa may now be imported into the United States under general license.

Because this rulemaking involves a foreign affairs function of the United States and since the President has directed affected agencies to take all necessary steps to comply with the Executive Order 12769, effective immediately, notice of proposed rulemaking and public procedure thereon are not required by the Administrative Procedure Act (5 U.S.C. 553(a)(1)), and the final rule may be made effective upon publication in the Federal Register.

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Environmental Impact: Categorical Exclusion

The NRC has determined that the final rule in part 110 is the type of action described in 10 CFR 51.10 and 51.22(c)(1) of this chapter. Therefore, neither an environmental impact statement nor an environmental assessment has been prepared.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget under approval number 3150-0036.

Regulatory Analysis

NRC already controls the import of uranium of South-African origin. Currently, the NRC's import regulations in part 110 require a specific license to import this material into the United States. NRC's sole objective in developing the revision is to conform with the President's Executive order of July 10, 1991, by amending NRC's import regulations in § 110.27 to permit uranium manufactured or produced in South Africa to be imported into the United States under general license. There are no alternatives for achieving the stated objective. The consequences of the specific NRC rulemaking action will have a minor but positive impact on the public. It will mean that those persons previously submitting specific license applications to import South African origin uranium for NRC consideration would now be allowed to use the general license provision in § 110.27 as their licensing authority. In this respect, NRC believes that no persons will be adversely affected by this rule. The rule will become effective immediately.

Backfit Analysis

The NRC determined that the backfit analysis provisions in 10 CFR 50.109 do not apply to this final rule, and, therefore, a backfit analysis is not required.

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalty, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

Pursuant to Executive Order 12769, sections 309(a) and 311 of Public Law 99-440, the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 110.

56 FR 40664
Published 8/15/91
Effective 9/16/91

Revisions to Procedures to Issue Orders; Deliberate Misconduct by Unlicensed Persons

See Part 2 Statements of Consideration

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

57 FR 61785
Published 12/29/92
Effective 12/29/92

Material Approved for Incorporation by Reference; Maintenance and Availability

See Part 35 Statements of Consideration

57 FR 62605
Published 12/31/92

10 CFR Part 110

RIN 3150-AD62

Clarification of Statutory Authority for Purposes of Criminal Enforcement

Correction

In rule document 92-28228 beginning on page 55062 in the issue of Tuesday, November 24, 1992, make the following correction:

§ 110.67 [Corrected]

On page 55080, in the third column, in the first paragraph, in § 110.67(a), several lines of text were left out. Beginning in the sixth line after "1610," the paragraph should have read "of the Act. For purposes of section 223, all the regulations in part 110 are issued under one or more of sections 161b, 161i, or 161o, except for the sections listed in paragraph (b) of this section."

58 FR 11886
Published 3/1/93

10 CFR Part 110

RIN 3150-AD62

Clarification of Statutory Authority for Purposes of Criminal Enforcement

Correction

In the correction to rule document 92-28228 appearing on page 62605 in the issue of Thursday, December 31, 1992, make the following correction:

§ 110.67 [Corrected]

On page 62605, in the first column, under the heading § 110.67 [Corrected], in the fourth line, "fourth" should read "sixth".

58 FR 12999
Published 3/9/93
Effective 3/9/93

10 CFR Part 110

RIN 3150-AD64

Export and Import of Nuclear Equipment and Material; Clarifying Amendments

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

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SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to the export and import of nuclear equipment and material. The revisions clarify the Commission's licensing requirements governing the export and import of nuclear equipment and material. The final rule makes NRC's regulations consistent with the physical security guidelines in IAEA INFCIRC/225, and conforms NRC's regulations for export and import to the Solar, Wind, Water, and Geothermal Power Production Incentives Act of 1990, and U. S. Government foreign relations commitments and changing circumstances.

EFFECTIVE DATE: March 9, 1993. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 9, 1993.

FOR FURTHER INFORMATION CONTACT: Elaine O. Hemby, Office of International Programs, Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2341, or Joanne M. Becker, Office of the General Counsel, Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-1740.

SUPPLEMENTARY INFORMATION:

Introduction

The NRC is amending its regulations for the export and import of nuclear equipment and material in 10 CFR part 110. Some sections are restructured and simplified to clarify the NRC's export and import licensing regulations. Some sections are amended to bring them into conformance with U.S. Government foreign relations commitments and changing circumstances, to make necessary editorial changes, and to provide additional information to aid exporters and importers. The following summary of the changes, presented in the order in which they appear, include the reasons for the changes.

Section 110.1 is clarified and expanded to provide the exporter with a better understanding of the scope of part 110 and the jurisdictional lines between the NRC and the Department of Commerce. To correct inconsistent references, the first sentence in § 110.1(a) is amended by adding the words "and § 110.9" after "§ 110.8", as the sections that set out the nuclear equipment and material whose export is regulated by NRC, and by changing the reference "§ 110.9" to "§ 110.9a", as the section that sets out the regulations for the import of nuclear equipment and

material. Paragraph (b)(1) is amended by changing "65" to "64" to correct an erroneous reference to the Atomic Energy Act.

In § 110.1, paragraph (b)(3) is redesignated as paragraph (b)(4) and amended by adding the sentence "A uranium enrichment facility is not a production facility." In § 110.2, the definition of "production facility" is revised by adding "other than a uranium enrichment facility," after the words "the separation of isotopes". In § 110.9a, which covers nuclear equipment and material under NRC import licensing authority, paragraph (e), "Uranium enrichment facilities", is removed. Thus, the import of a uranium enrichment facility into the United States will not require an NRC license. This conforms NRC's import licensing regulations under part 110 to the "Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990", Public Law 101-575, signed by the President on November 15, 1990. Section 5 of that law amends the Atomic Energy Act to remove a uranium enrichment facility from the definition of a "production facility" for the purposes of chapter 10, "Atomic Energy Licenses," and chapter 16, "Judicial Review and Administrative Procedure" of the Act, except with respect to the export of a uranium enrichment facility. Footnote 1 in paragraph 110.1(b)(2) is removed and incorporated in the text as paragraph (b)(3).

In § 110.2, definitions of "nuclear referral list" and "individual shipment" are added. Also, the definition of "export" is revised to clarify its meaning. After consultation with the Executive Branch, the NRC concluded that it would be appropriate to modify the definition of a utilization facility by changing the term "control rods" to "complete reactor control rod system" as one of the major components constituting a utilization facility. The purpose of the change is to reflect more clearly the requirements of the Atomic Energy Act. Exports of individual control rods are more appropriately treated as exports of nuclear components under section 109b of the Atomic Energy Act of 1954, as amended, rather than exports of utilization facilities. Editorial changes also are made in the "utilization facility" definition. The reference to the Topaz II reactor system in the definition of a utilization facility is deleted because it is no longer necessary, as is the reference to the definition of utilization facility in § 110.5.

Section 110.4 is clarified and updated to reflect organizational changes within the NRC and current addressees for NRC

contacts. Section 110.6 is updated to reflect the current addressee for the Department of Energy contact. Section 110.7, covering information collection requirements, is amended to include § 110.20 because the section contains an information collection requirement.

The list of nuclear equipment under the NRC export licensing authority in § 110.8 is restructured for clarity. For technical clarity, plants for the separation of the isotopes of lithium and lithium processing equipment are removed from paragraph (b), which covers plants for the separation of the isotopes of source material or special nuclear material, because the two technologies are different. A new paragraph is added to cover plants for the separation of the isotopes of lithium and lithium processing equipment. A new paragraph also is added to alert an exporter that some nuclear-related commodities are under the licensing authority of the Department of Commerce.

Subpart C, regarding general licenses, and subpart D, regarding specific licenses, have been combined for clarification and to emphasize the distinction between general and specific licenses. The introductory titles of subparts C and D are incorporated. A new § 110.19 is added to explain the distinction between general and specific licenses. Section 110.20 is clarified and restructured, and the section headings for §§ 110.21-110.27, covering general licenses, are revised for clarification. Section 110.25, concerning the export of graphite under general license, is amended to alert the exporter that some exports of graphite are under the licensing authority of the Department of Commerce. Section 110.26(a) is amended to permit a person to export under general license nuclear reactor components in semifabricated form to any country listed in § 110.26(a) for the purpose of undergoing final fabrication or repair for subsequent return to the United States for use in United States reactors. For simplification, footnote 2 in § 110.26(a) is removed and the countries listed in footnote 2 are added to the countries listed in § 110.26(a). Portugal, which is now a EURATOM member, is added to the list of countries in § 110.26(a). Section 110.27(c) is amended to direct the exporter to the definition of the term "formula quantities of strategic special nuclear material."

The list of embargoed destinations in § 110.28 is amended to indicate that Kampuchea is now known as Cambodia and to add Iran, Iraq and Libya. Iran, Iraq and Libya are removed from the restricted destination list in § 110.29.

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Albania, Bahrain, Kuwait, Malawi, Mozambique, Qatar, Saudi Arabia, South Africa, Tanzania, Zambia, and Zimbabwe are deleted from the list of restricted destinations in § 110.29 because these countries are adherents to the Non-Proliferation Treaty (NPT). A new footnote is added to § 110.29 to indicate that Argentina and Brazil will be removed from the restricted destination list following implementation of the Argentina/Brazil/IAEA full scope safeguards agreement.

Because subparts C and D are combined under a revised subpart C, the heading of subpart D is removed, and the headings of subparts E, F, G, H, I, J, K, and L are redesignated.

In § 110.30, the section heading is revised for clarity and a new paragraph is added to indicate that a fee is assessed under 10 CFR part 170 for filing an application with the NRC for a specific license for export or import. The fee was added to 10 CFR part 170 in an earlier rulemaking (56 FR 31472; July 10, 1991). The July 10, 1991 final rule implements the Omnibus Budget Reconciliation Act of 1990 (Pub. L. 101-508), which was signed into law on November 5, 1990. The Act mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year 1991 (FY91) and the next four years (FY1992-1995) by assessing fees for licensing services requested by applicants and through annual fees on licenses. There is no annual fee for a general or specific export or import license. In § 110.31, the section heading is changed for clarification.

The NRC has reviewed its processing of nuclear export license applications under the Atomic Energy Act of 1954, as amended, and has determined that certain classes of export license applications do not raise issues which require review by the Commissioners. Therefore, paragraphs 110.40(b)(3) and (b)(4) are amended to delegate additional authority to the NRC staff to act upon certain classes of applications without prior consultation with the Commissioners. Under the amended paragraphs, the Commissioners will no longer review a license application for an export to Canada involving heavy water or for the export to EURATOM or Japan of source material or low-enriched uranium for enrichment up to 5 percent in the isotope uranium-235. The Executive Branch has also determined that these classes of export license applications do not raise issues which require review by the Executive Branch. Therefore, paragraphs 110.41(a)(3) and (a)(5) are amended to indicate that the NRC staff will act upon these classes of applications without prior consultation

with the Executive Branch. Section 110.40(a), which states that the Commission will start the review of a license application immediately after receipt, is amended to add a phrase "pursuant to the regulations in this part" indicating that the required license application fee must be received before review of the application begins.

In § 110.42(a), footnote 3 is redesignated as footnote 2 and is revised to clarify those items under the licensing jurisdiction of the NRC, including the reference to "control rods" which is changed to "complete reactor control rod system", as one of the major components constituting a utilization facility.

Section 110.43 concerning physical security standards is amended for clarification and simplification and to incorporate the update and recommendations contained in the IAEA document INFCIRC/225/Rev.2, December 1989.

In § 110.50, the name of the NRC contact referenced in paragraph (b)(3) is updated to reflect organizational changes.

In § 110.70, the NRC contact and address, concerning obtaining periodic lists of applications received, are updated in paragraph (c).

In Appendix A, paragraph (3) is amended by changing the words "reactor control rods" to "complete reactor control rod system" and by adding the phrase ", including the neutron absorbing part and the support or suspension structures therefor;" after the words "reaction rate in a nuclear reactor". This is being done to be consistent with the revised definition of "utilization facility".

Corrections are made to Appendix B, which covers gas centrifuge enrichment plant components under NRC's export licensing authority, and Appendix D, which covers reprocessing plant components under NRC's export licensing authority.

Appendix E is redesignated as appendix G, and a new appendix E is added for clarification of the coverage of specially designed or prepared equipment for use in a plant for the production of heavy water, deuterium, and deuterium compounds, which are subject to NRC's licensing regulations under 10 CFR 110.8. This action will conform NRC's licensing regulations to the export control guidelines of the International Nuclear Exporters Group (the Zangger Committee), in which the United States participates. The list in appendix E is intended to clarify administration of export controls over those items.

A new appendix F is added that lists the byproduct materials under the licensing jurisdiction of the NRC. This is being done to assist exporters, importers, and customs officials in determining whether a particular isotope is under the licensing authority of the NRC.

Because this rulemaking involves a foreign affairs function of the United States, the prior notice and comment provisions of the Administrative Procedure Act do not apply, pursuant to 5 U.S.C. 553(a)(1), and good cause exists to make the amendments effective upon publication in the Federal Register, pursuant to 5 U.S.C. 553(d) of that Act.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described as a categorical exclusion under 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval numbers 3150-0036 and 3150-0027.

Regulatory Analysis

The Commission has considered alternatives to as well as the costs and benefits of the final rule. There is no alternative to amending the regulations for the export and import of nuclear equipment and materials. The final rule would not result in any increase or cost to the public and is intended to clarify the current regulations to assist exporters, importers, and customs officials and to encourage the expanded use of general licenses. The foregoing constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this final rule does not have a significant economic impact on a substantial number of small entities. The effect of the final rule will be to clarify Part 110 to encourage expanded use of general licenses and to provide greater understanding of other provisions. This action will assist licensees and applicants in understanding and complying with the licensing procedures in Part 110

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without increasing the economic impact on licensees and applicants.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because 10 CFR Part 110 applies only to export and import of nuclear facilities, materials, and equipment. Therefore, a backfit analysis is not required for this final rule.

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalty, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC has adopted the following amendments to 10 CFR Part 110.

58 FR 57962
Published 10/28/93
Effective 11/29/93
Comment period expires 1/10/94

10 CFR Part 110

RIN 3150-AE82

Export and Import of Nuclear Equipment and Material; Export of High-Enriched Uranium

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to the export and import of nuclear equipment and material to implement section 903 of the Energy Policy Act of 1992. The final rule augments NRC regulations to include the criteria for the export of high-enriched uranium specified in the Energy Policy Act.

DATES: The rule becomes effective November 29, 1993. Submit comments on or before January 10, 1994.

ADDRESSES: Mail written comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland 20852, between 7:45 am and 4:15 pm Federal workdays. (Telephone 301-504-1966.)

Copies of comments received may be examined at: the NRC Public Document Room at 2120 L Street NW (Lower Level), Washington, DC 20037.

FOR FURTHER INFORMATION CONTACT: Elaine Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 504-2341.

SUPPLEMENTARY INFORMATION: The Energy Policy Act of 1992 (Pub. L. 102-496), was enacted on October 24, 1992. Section 903 of that Act added a new section 134 to the Atomic Energy Act of 1954, as amended. The new section 134 provides that the NRC may issue a license for the export of high-enriched uranium to be used as a fuel or as a target in a nuclear research or test reactor only if, in addition to any other requirement of that Act, the Commission determines that:

(1) There is no alternative nuclear reactor fuel or target enriched in the isotope 235 to a lesser percent than the proposed export, that can be used in that reactor;

(2) The proposed recipient of that uranium has provided assurances that, whenever an alternative nuclear reactor fuel or target can be used in that reactor, it will use that alternative in lieu of highly enriched uranium; and

(3) The United States Government is actively developing an alternative nuclear reactor fuel or target that can be used in that reactor.

Section 134 b. of the Atomic Energy Act of 1954, as amended, defines the operative terms as follows:

b. As used in this section—
“(1) The term ‘alternative nuclear reactor fuel or target’ means a nuclear reactor fuel or target which is enriched to less than 20 percent in the isotope U-235;

(2) The term ‘highly enriched uranium’ means uranium enriched to 20 percent or more in the isotope U-235; and

(3) A fuel or target ‘can be used’ in a nuclear research or test reactor if—

(A) The fuel or target has been qualified by the Reduced Enrichment Research and Test Reactor Program of the Department of Energy, and

(B) Use of the fuel or target will permit the large majority of ongoing and planned experiments and isotope production to be conducted in the reactor without a large percentage increase in the total cost of operating the reactor.”

The Commission has adopted amendments to §§ 110.2 and 110.42(a) of 10 CFR part 110 to include provisions of section 134 of the Atomic Energy Act

of 1954, as amended. The amendment to § 110.2 adds a definition of the term “target” as used in the statute. The amendment to § 110.42 adds a new paragraph (a)(9) that sets forth the criteria for export of high-enriched uranium as specified in the legislation.

This rulemaking involves a foreign affairs function of the United States.

Additionally, the Atomic Energy Act of 1954, as amended, directs the Commission to impose the limitations on the issuance of licenses to export high-enriched uranium as described above. The changes to Commission regulations incorporate and interpret the relevant language of the Energy Policy Act of 1992 into 10 CFR part 110. The Commission has therefore found that, for the reasons stated above, notice of proposed rulemaking and comment thereon are not required by the Administrative Procedure Act (5 U.S.C. 553(a)(1), codified at 10 CFR 110.132(e), and 5 U.S.C. 553(b)(A)). Nevertheless, any interested member of the public who believes that the Commission has not accurately conformed part 110 to section 134 of the Atomic Energy Act of 1954, as amended, or has comments on any other relevant issue is invited to submit comments within 75 days of the date of publication of this rule.

Environmental Impact: Categorical Exclusion

The NRC has determined that the final rule in part 110 is the type of action described in 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0036.

Regulatory Analysis

The Commission has considered alternatives to as well as the costs and benefits of the final rule. There is no alternative to amending NRC's regulations in 10 CFR part 110 because the Energy Policy Act of 1992 directs the Commission to impose limitations on the issuance of licenses to export high-enriched uranium. NRC's regulations already provide strong regulatory control over the export of high-enriched uranium by strictly limiting its supply; therefore, the rule will have minimal impact on affected exporters. The final rule will not result

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in any increase or cost to the public. The foregoing constitutes the regulatory analysis for this final rule.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, therefore, a backfit analysis is not required for this final rule because part 110 applies only to the export and import of nuclear facilities, material and components, and does not deal with domestic facilities.

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalties, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 110.

59 FR 48994
Published 9/26/94
Effective 11/10/94

10 CFR Part 110

RIN 3150-AE31

Specific Licensing of Exports of Certain Alpha-Emitting Radionuclides and Byproduct Material

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to establish specific licensing controls on the export of bulk tritium, transuranic isotopes americium-242m, californium-249, californium-251, curium-245, curium-247, and certain specified alpha-emitting radionuclides; revise and establish new general licenses for tritium and the specified alpha-emitting radionuclides which are keyed to the recipient country's membership in the Nuclear Suppliers Group; remove Argentina, Brazil, and Chile from the list of restricted destinations; and revise the general license for exports of Canadian-origin uranium. The amendments are necessary to conform the export controls

of the United States to international export control guidelines and a treaty obligation of the U.S. under the U.S.-Canada Agreement for Cooperation.

EFFECTIVE DATE: November 10, 1994.

FOR FURTHER INFORMATION CONTACT: Elaine Hemby, Office of International Programs, Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2341.

SUPPLEMENTARY INFORMATION:

I. Background

On March 17, 1993 (58 FR 14344), the NRC published in the *Federal Register* a proposed rule that would amend NRC's regulations in 10 CFR part 110 pertaining to the export of nuclear material and equipment. The proposed amendments would revoke the current general licenses for bulk tritium and alpha-emitting radionuclides having an alpha half-life of 10 days or greater but less than 200 years to conform NRC's regulations to the export control guidelines of the Nuclear Suppliers Group (NSG) for nuclear-related, dual-use items contained in IAEA INFCIRC/254/Revision 1/Part 2 and approved in 1992.¹ The alpha-emitting radionuclides subject to this rule are plutonium-236, plutonium-238, thorium-227, thorium-228, uranium-230, uranium-232, actinium-225, actinium-227, californium-248, californium-250, californium-252, curium-240, curium-241, curium-242, curium-243, curium-244, einsteinium-252, einsteinium-253, einsteinium-254, einsteinium-255, fermium-257, gadolinium-148, mendelevium-258, polonium-208, polonium-209, polonium-210, and radium-223 (specified alpha-emitting radionuclides). Consistent with the NSG guidelines, new general licenses would be established to permit the export of the specified alpha-emitting radionuclides and dispersed tritium to countries which are members of the NSG dual-use guidelines and to permit the export of the specified alpha-emitting radionuclides to most other countries when in a device, or a source for use in a device, containing less than 100 millicuries (3.7 GBq) of alpha activity per device (10 CFR part 71, appendix A, provides specific activities in curies per gram).

¹ Tritium and reactor produced alpha-emitting radionuclides are the two commodities on the NSG dual-use list whose exports are regulated by the NRC. The other items identified on this list, including alpha-emitting radionuclides produced with nuclear particle accelerators, are subject to Department of Commerce export controls, and are contained on a list referred to as the Nuclear Referral List.

The current general license for source material in § 110.22(b) would be revised to reduce the annual limit of Canadian-origin natural uranium that can be exported to any single country from 1,000 kilograms to 500 kilograms to help assure U.S. compliance with provisions of the U.S.-Canada Agreement for Cooperation.

The current general licenses for transuranic isotopes americium-242m, californium-249, californium-251, curium-245, and curium-247 would be revoked to conform NRC's regulations to the International Atomic Energy List of the Coordinating Committee on Multilateral Export Controls (COCOM). Although COCOM was dissolved in March 1994, the NRC is placing specific licensing controls on these isotopes because the U.S. and other COCOM member countries agreed to retain export controls on the existing COCOM list of items. Steps are now being taken by former COCOM member countries to propose that the NSG control most, if not all, of the nuclear commodities on the COCOM list.

The proposed amendment to restructure Appendix A, which describes the nuclear reactor equipment subject to NRC licensing authority, will be addressed in a separate rulemaking proceeding.

II. Comments on the Proposed Rule

The Commission received six letters commenting on the proposed rule. Copies of the letters are available for public inspection and copying for a fee at the Commission's Public Document Room, located at 2120 L Street, NW (Lower Level), Washington, DC. Five of the letters, two of which were from the same company, came from U.S. manufacturers that utilize sources containing the specified alpha-emitting radionuclides. These commenters strongly objected to the revocation of the general licenses for the specified alpha-emitting radionuclides, particularly californium-252 (Cf-252). The commenters indicated that the specific licensing requirements could result in serious economic disadvantage to their export business. It is their view that specific licenses would be disruptive to their businesses and cause them to lose potential business because of the higher expenses of license application fees, the additional paperwork burden, time delays, and uncertainties in delivery. One commenter believed the current general license regulations in Part 40 provided sufficient documentation to identify the supplier, quantity exported, and end user/end use. Several commenters argued that the revisions were

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unnecessary and were without any benefit to the stated objective of nonproliferation of nuclear weapons.

In view of these adverse comments, the NRC asked the companies to provide specific sales data on their exports to better understand the implications of the new regulation. After reviewing the responses, the NRC continues to believe that the economic impact on these companies is not significant because of the steps we have taken to address their concerns. First, the new general licenses permit the export of the specified alpha-emitters in quantities up to 100 millicuries to most countries, even when they are shipped separately from the equipment in which they are to be used. This understanding, in itself, reduced much of their concerns. The final rule was revised to clarify this point. Other new general licenses permit the export of unlimited quantities (except as limited by existing general licenses) of the specified alpha-emitting radionuclides to NSG member countries. These new general licenses will allow the companies to export a significant quantity of their Cf-252 sources, including replenishment sources, without obtaining specific licenses. Also the companies are encouraged to apply for broad, long-term licenses to export their Cf-252 sources. These kinds of applications could include customers in a number of friendly, non-NSG countries and in sufficient quantities to cover replenishment sources for six years.

Several commenters questioned whether a source containing less than 100 millicuries (186 micrograms) of Cf-252, if shipped separately from the device in which it is to be used, could be exported under the proposed new general license. One commenter noted that in the NRC materials licensing regulations, a "source" is not defined as a "device". As stated above, the NRC considers, for the purpose of part 110, that the export of a Cf-252 source for use in a specified device qualifies for this general license. The new general licenses are revised to clarify this point.

One commenter requested that the effective date of the rule be delayed or that exports under contract be exempted by a "grandfather" clause to avoid possible forced defaults in currently existing contracts that are now subject to specific licensing controls. In response to this concern, the effective date of this rule is 45 days after publication. This should be sufficient time for exports that are "in process" to be accomplished without default. The NRC did not consider a "grandfather" clause in the rule to cover committed contracts. One commenter has committed contracts to deliver Cf-252

sources to the year 1997. The NRC believes these sources should not be excluded from the new regulation for more than another few weeks. The applicable export control guidelines were agreed to by the U.S. and other NSG member countries in 1992 and should be implemented by the NRC without an extended delay.

A commenter representing a major U.S. vendor stated that the proposed restructuring of Appendix A and the new language still did not clearly delineate which minor reactor components required NRC licenses and which fall within the jurisdiction of the Department of Commerce. The commenter believed that the proposed amendment could result in increased confusion for exporters. In view of this comment, the Commission defers consideration of the revision of Appendix A to a future rulemaking.

The same commenter was concerned that service tooling contaminated with residual byproduct, source, or special nuclear material may be subject to specific licensing controls under the proposed rule. It is not the intent of the NRC to place new controls on these types of nuclear materials in this rulemaking.

III. The Final Rule

Under current NRC regulations, bulk tritium in quantities up to 100 curies, the specified alpha-emitting radionuclides in unlimited quantities, and transuranic isotopes americium-242m, californium-249, californium-251, and curium-245 in unlimited quantities can be exported to most countries under general licenses. The final rule amends the general license provisions in §§ 110.21-110.23 for the export of special nuclear, source, and byproduct material to revoke the general licenses for these materials. Specific licensing controls are established on the above materials. Although some of the specified alpha-emitting radionuclides inadvertently were not specifically identified in the proposed rule, they are included in the general license revocation implemented by this rule.

Argentina, Brazil, and Chile are removed from the list of restricted destinations in § 110.29. Since publication of the proposed rule, Argentina and Brazil have ratified and begun implementation of the Argentina/Brazil/IAEA full-scope safeguards agreement and Chile has waived into force the Treaty of Tlatelolco.

Section 110.30 is a list of the other member countries of the NSG. Exports of the specified alpha-emitting radionuclides in unlimited quantities (except as limited by the existing general licenses) and dispersed tritium

in quantities up to 40 curies per device are permitted to NSG member countries under the new general licenses established for them. Subsequent to the publication of the proposed rule, Argentina has become a member of the NSG and is included in the list.

Three items covered in this final rule were not specifically identified in the proposed rule: (1) The general licenses in § 110.23 for einsteinium-252 -253 -254 -255, fermium-257, gadolinium-148, and mendelevium-258 are revoked; (2) Argentina, Brazil, and Chile are removed from the restricted destination list in § 110.29; and (3) Argentina is added to the NSG member list in § 110.30. Although the NRC did not publish these changes for comment in the proposed rule, the NRC is merely codifying international obligations of the United States. The NRC is proceeding to final rule because these changes involve a foreign affairs function of the United States. Therefore, solicitation of public comment is not required under the Administrative Procedure Act (5 U.S.C. 553(a)(1)) and 10 CFR 110.132(e) and 110.134. Here solicitation of public comments would delay U.S. conformance with its international obligations and therefore would not be in the public interest.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described as a categorical exclusion under 10 CFR 51.22 (c)(1) and (c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval numbers 3150-0036 and 3150-0027.

The public reporting burden for this collection of information is estimated to average less than 3 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Desk

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Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0036, 3150-0027), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

See the discussion in the Regulatory Flexibility Certification for the final regulatory analysis for this rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities.

Based on the information available to the Commission at the time the proposed rule was published, the Commission previously certified that the proposed rule, if adopted in final form, would not have a significant economic impact on a substantial number of small entities. The information to support this was obtained from the Department of Energy's national laboratories and some industry sources. The Commission also invited any small entity that determined that it is likely to bear a disproportionate economic impact because of its size to notify the Commission.

The Commission received four comments on the proposed rule from U.S. manufacturers that utilize radioactive sources containing Cf-252. Two of the companies qualify as small entities. Through their comments, the Commission became aware of the potentially detrimental economic impact that the revocation of the general licenses under which they were permitted to export Cf-252 would have. In view of these adverse comments, the NRC asked the companies to provide sales data on their exports to better reflect the implications of the new regulation. Based on a review of this summary data, the NRC, in cooperation with the companies, found that the impact of the rule changes on future sales will be much less than they had feared.

First, new general licenses are established to permit the export of Cf-252 sources in quantities up to 100 millicuries to most countries, even when they are shipped separately from the equipment in which they are to be used. This understanding, in itself, reduces much of their concerns. Further, other new general licenses are established to permit the export of unlimited quantities (except as limited by existing general licenses) of Cf-252 sources to NSG member countries. These new general licenses will allow

the companies to export a significant quantity of their Cf-252 sources, including replenishment sources, without obtaining specific licenses. In addition, the companies may submit broad, long-term licenses to export their Cf-252 sources to their medical, scientific, industrial, and reactor-related customers in friendly, non-NSG countries, thereby eliminating case-by-case review. Such licenses could authorize exports of Cf-252 sources in sufficient quantities to cover startup sources and replenishment sources for Taiwan and South Korean power reactors for a number of years. The anticipated value of the exports under such licenses would range from \$260,000 to over \$2 million. Other such licenses could authorize exports of Cf-252 sources and replenishment sources to medical, industrial, and scientific customers, with total export values under such licenses ranging from \$100,000 to over \$500,000. The current fee would be \$1300 for each specific license application submitted. These steps will greatly reduce the financial burden of the license application fees and the additional paperwork. The processing of an export license application of this type normally takes less than 45 days for final action. The annual burden imposed by the rule is estimated to average less than 3 hours for an exporter for each specific application. The staff expects less than ten new applications a year as a result of this rule.

As an additional step to address the concerns of the exporters, the NRC consulted with the Department of Energy technical specialists to determine if any adjustments could be made to the proposed amendments for the specified alpha-emitting radionuclides, particularly Cf-252, to lessen the burden on U.S. exporters that export these materials to non-NSG member countries (exports to NSG countries would still be under general licenses). However, no acceptable adjustments were identified. We confirmed with U.S. nuclear weapons design experts that all of the specified alpha-emitting radionuclides, including Cf-252, could have some utility in nuclear explosive devices and that the 100 millicurie threshold for control was appropriate for the specified alpha-emitting radionuclides.

There are no alternatives for achieving the stated objective. This rule is necessary to conform NRC's export controls to the international export guidelines of the NSG. The United States and other NSG member countries have formally agreed to control these materials because of their utility in

nuclear explosive weapons. Thus, the regulation is required to satisfy an international obligation of the United States. The foregoing discussion constitutes the regulatory flexibility analysis and the regulatory analysis for this final rule.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this final rule because these amendments do not include any provisions that would require backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalties, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 110.

59 FR 50688
Published 10/5/94
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NRC Library; Address Change

See Part 35 Statements of Consideration

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SUPPLEMENTARY INFORMATION:

- I. Objective and Background
- II. Analysis of Public Comments on Proposed Rule
- III. Overview of New Rule

I. Objective and Background

Radioactive waste is generated from the nuclear fuel cycle during the normal operation of nuclear power plants, fuel fabrication plants, enrichment facilities, uranium mining and milling facilities; the decommissioning and close out of nuclear facilities (environmental restoration); and the use of radioactive materials in medicine, industrial applications, research, and education. The nuclear fuel cycle is by far the largest source of radioactive waste, with low-level radioactive waste (LLW) currently accounting for the largest proportion of waste by volume. The importance of protecting human health and the environment in radioactive waste management and disposal has long been recognized by the NRC. This rule helps ensure the safe management and disposal of radioactive waste by amending the NRC's regulations in 10 CFR Part 110 with respect to radioactive waste entering or leaving the jurisdiction or control of the United States. The amendment also clarifies the requirements applicable to shipments of incidental radioactive material.

This final rule is intended to reflect the principles of the International Atomic Energy Agency (IAEA) Code of Practice on the International Transboundary Movement of Radioactive Waste (Code). The Code was approved in September 1990, with strong U.S. Government support. The Code resulted from an international effort within the IAEA to address concerns about possible improper transfer and disposal of radioactive waste. A set of principles was established to guide countries in the development and harmonization of policies and laws on transboundary movements of radioactive waste to ensure its safe management and disposal. A basic principle of the Code is that international movements of radioactive waste should take place with the prior notification and consent of the sending, receiving, and transit countries. The Code also provides that no receiving country should permit the receipt of radioactive waste for management or disposal unless it has the administrative and technical capacity and regulatory structure to manage and dispose of the waste in a manner consistent with international safety standards. Before the issuance of this final rule, NRC's regulations were not consistent with the principles

embodied in the Code, especially with regard to possible transfers of LLW. (The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal expressly excludes from its coverage "[w]astes which, as a result of being radioactive, are subject to other international control systems, including international instruments, applying specifically to radioactive materials". Because the IAEA Code of Practice is an international instrument applying specifically to radioactive materials, radioactive waste is excluded from the scope of the Basel Convention.)

Under the Atomic Energy Act of 1954, as amended, NRC has the statutory responsibility for authorizing the export and import of byproduct, source, and special nuclear material. The NRC regulates the import and export of these materials under 10 CFR Part 110. Until now, NRC's regulations in Part 110 were concerned primarily with exports and imports that have nuclear proliferation significance. Thus, radioactive materials that have little or no significance with respect to national security (proliferation), such as LLW, have not been subject to specific licensing. Rather, radioactive waste has been allowed to leave the United States under general export licenses pursuant to §§ 110.21–110.23, and to enter the United States under similar Part 110 provisions in § 110.27. (After entry into the United States, the domestic regulations of the NRC and Agreement States apply.) During the development of this rulemaking, the NRC, in consultation with other government agencies, published an advance notice of proposed rulemaking (ANPR) on February 7, 1990 (55 FR 4181) to seek comments from the public, industry, and other government agencies on four possible options and thirteen associated questions for establishing an NRC policy on radioactive waste exports and imports. The comments received in response to the ANPR were considered in a proposed rule published in the *Federal Register* on April 28, 1992 (57 FR 17859). The comments on the proposed rule were considered in the development of the definitions, exceptions, procedures, and licensing criteria of the final rule.

II. Analysis of Public Comments on Proposed Rule

Seventeen letters of comment were received in response to the proposed rule from individuals, organizations, industry, and government agencies. One letter was subsequently withdrawn.

One commenter believed that the NRC should not permit any category of

60 FR 37556
Published 7/21/95
Effective 8/21/95

10 CFR Part 110
RIN 3150-AD36

Import and Export of Radioactive Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to establish specific licensing requirements for the import and export of radioactive waste and to clarify the requirements for the import and export of incidental radioactive material coming into or leaving the United States. The amendments conform the policies of the United States to the guidelines of the International Atomic Energy Agency (IAEA) Code of Practice on the International Transboundary Movement of Radioactive Waste. These amendments strengthen the Commission's control over radioactive waste entering and leaving the United States.

EFFECTIVE DATE: August 21, 1995.

ADDRESSES: Copies of comments received are available for public inspection and copying for a fee at the Commission's Public Document Room, located at 2120 L Street, NW. (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Ronald Hauber, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 415-2344.

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radioactive waste to be moved into or out of the United States, except perhaps in a few extraordinary circumstances. Another commenter urged the NRC to ban all imports and exports of radioactive waste. The NRC does not agree with these highly restrictive approaches. International commerce in radioactive waste, including movement of waste into and out of the United States, may be desirable from a policy perspective. For example, some commerce involving radioactive waste may further important policy goals of the international community (such as waste shipments for international research) and other shipments may embody desirable take-back features (such as return of U.S. Government radioactive waste and shipments of used radioactive sources to authorized consignees).

Other commenters urged the NRC to exempt from specific licensing controls movements of sealed sources that are being returned to the U.S. or another country for reconditioning, recycling or reprocessing. They noted that, while the supplementary information of the proposed rule incorporated this view, no such provision was expressly provided in the regulations. The NRC believes that there should be an exclusion from the definition of "radioactive waste" in Part 110 for movements of sealed sources and devices containing sealed sources to any qualified manufacturer authorized to receive and possess them. These types of transfers help to ensure that the materials are handled responsibly and not left in dispersed and perhaps unregulated locations around the world, and therefore they should not be subject to specific licensing if the radioactive material involved would not otherwise be subject to such licensing. The definition of radioactive waste has been revised to exclude these shipments.

One commenter expressed the view that export and import of LLW should be treated no differently from sealed sources and radiopharmaceuticals, opining that all radioactive materials should be handled consistently. It is not clear whether this means that the regulations should apply the same treatment to waste and non-waste forms of radioactive material, or whether the commenter simply believes that all types of radioactive waste should be treated identically. The NRC believes that the former approach would not be consistent with the view embodied in the Code of Practice that there should be a special regime for transboundary movements of radioactive waste. The NRC is in general agreement with the position that most radioactive waste

should be handled consistently, but in some situations there are policy considerations that militate in favor of a different result. An example of this is found in the exclusion of certain sealed sources from the definition of "radioactive waste", discussed above. Other exceptions are discussed elsewhere in the supplementary information.

Several commenters said that NRC's policy on regulation of export and import of radioactive waste for waste management purposes needs modification. They opined that import and export for waste management purposes, as distinct from disposal, should not be subject to specific licensing under Part 110. One of these commenters, representing businesses in decommissioning and environmental restoration activities, said that specific licensing should not be required for volume reduction, treatment, and resource recovery. Others argued that waste management practices should be encouraged internationally without unnecessary restrictions as rising disposal costs make them more feasible and cost effective, especially when residual LLW will be returned to the country of origin. In response to these comments, the NRC has made special provisions for certain shipments intended for recycling or resource recovery. (See the provisions in the final rule relating to incidental radioactive material.) However, though the proposed rule published in 1992 did have an exclusion for return of radioactive waste to a consignee in the country that previously exported the radioactive material, after careful consideration of the comments, the NRC has concluded that a general exemption for waste going to the country of origin would not ensure conformity with the Code of Practice. A country that exports radioactive material may not have adequate means to handle its management or disposal when returned as radioactive waste. Further, such a broad exemption would leave too large a regulatory gap, permitting a country of origin to be used as a way station for waste intended for disposition elsewhere. Thus, this change also addresses the concerns of commenters who expressed apprehension that radioactive waste might be exported from the U.S. under false pretenses.

Three commenters were of the view that specific licenses should not be required for transboundary movements of what the final rule terms "incidental radioactive material"—i.e., radioactive material not otherwise subject to specific licensing under Part 110 that is contained in or a contaminant of any

non-hazardous, non-radioactive material that is exported or imported for recycling or resource recovery of the non-radioactive component. The Commission agrees that such movements should not require the issuance of a specific license because, by definition, the immediate purpose of these shipments is not waste management or disposal of the radioactive component. The rule helps to ensure the purpose is bona fide by limiting the use of the term "incidental radioactive material" to situations in which the exported material will not be processed for separation of the radioactive component before the recycling or resource recovery occurs or during the resource recovery process. However, since in these cases the radioactive component of the material being shipped has, in itself, no foreseeable use, the Commission believes that some form of regulatory oversight of these exports is required in order to help ensure that an exporter will not ship radioactive waste for disposal in another country under the guise of shipping usable materials for recycling or resource recovery. The proposed rule was somewhat ambiguous on this point. Therefore, the final regulations have been clarified in that regard. (The term "incidental radioactive material" is applied to the radioactive component of the exported material, rather than a term identifying the radioactive component as a form of radioactive waste, because the Commission believes that this will avoid unnecessary limitations on the usefulness of the material for recycling or resource recovery.)

Under the rule proposed in 1992, an exporter of material that contains or is contaminated with radioactive material for which no use is foreseen was generally required to file an NRC Form 7 before the export took place and the export required a specific license issued by the NRC. Under the final rule, an exporter of incidental radioactive material will still be required to file an NRC Form 7 before the export takes place (if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms), but the NRC will not issue a specific license in these cases. Shipments involving incidental radioactive material will continue to take place under the general license provisions in §§ 110.19–110.30. Deliberate misrepresentations on the form are subject to the same penalties as apply to falsification of other documents submitted in matters involving the United States and may subject a person

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to criminal sanctions under section 223 of the Atomic Energy Act. To help clarify the application of the rule in these cases, definitions of "incidental radioactive material" and "management" have been added in the final rule.

Several commenters were concerned that the proposed definition of "radioactive waste" was too vague and subjective, possibly leading to an exporter shipping radioactive waste for disposal in another country under the guise of shipping usable materials for recycling or resource recovery. Several other commenters, including one representing electrical utilities in the United States, criticized the proposed definition of radioactive waste as differing from the various waste terms in other parts of NRC's regulations. One said that the definition had not been sufficiently evaluated by affected parties and that basing it upon whether "use is foreseen" is unprecedented in NRC's regulations and represents new NRC thinking which could have implications beyond the amendments to Part 110. The NRC recognizes that the concept of foreseeable use, introduced by the IAEA Code of Practice, could cause some confusion. Therefore, in response to these concerns, the definition of "radioactive waste" has been clarified to provide for usage of the term in a manner that is generally more consistent with NRC's usage for domestic purposes. As so defined, the export and import of radioactive waste requires issuance of a specific license under Part 110.

Generally, the final rule requires the filing of an NRC Form 7 for export of radioactive waste, as was provided under the proposed rule. Exports of radioactive waste remain subject to the specific licensing requirements of Part 110, unless expressly excluded. In addition, an NRC Form 7 must be filed before the export of incidental radioactive material (if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms), but in most instances a specific license will not be required for such an export. Information required to be reported on NRC Form 7 is listed in 10 CFR 110.32.

Under the final rule, imports of radioactive waste are also subject to the specific licensing provisions of Part 110. Imports of incidental radioactive material, however, do not require the filing of any information with the NRC and remain subject to the general licensing provisions of Part 110. This is considered sufficient in light of the extensive domestic regulatory program

to which they will be subject when they enter the United States.

One commenter said the proposed regulation was unclear on NRC's position on imports and exports of mixed waste (i.e., waste that consists of hazardous waste and radioactive waste). It is the NRC's view that with respect to radioactive waste components of mixed waste, such transboundary movements should be subject to the specific licensing requirements of Part 110, and the definitions of "incidental radioactive material" and "radioactive waste" reflect this position. Accordingly, the NRC, under the Atomic Energy Act, will license movements of mixed waste into and out of the United States. The Environmental Protection Agency (EPA) under the Resource Conservation and Recovery Act and the NRC under the Atomic Energy Act jointly regulate exports of mixed waste from the jurisdiction of the United States. The NRC will consult with the EPA regarding Part 110 license applications relating to movements of mixed waste. (Domestically, mixed waste is subject to applicable regulations of the EPA and NRC.) A sentence has been added to § 110.19 alerting potential shippers to the fact that an NRC license does not avoid the need to consult with the EPA regarding the hazardous component of mixed waste.

One commenter stated its view that service tooling used in nuclear facilities contaminated with radioactive materials is not radioactive waste as defined in the proposed rule. It was not NRC's intent to include as radioactive waste exports and imports of contaminated equipment (including service tools) used in nuclear facilities, if the equipment is being shipped for use in another such facility and not for management or disposal. While one could reasonably maintain that this is not a question of radioactive waste at all, to ensure that the NRC's intent is free from doubt, the definition of "radioactive waste" in the final rule clarifies this point.

Two commenters expressed concern that the information required on an application for a specific license did not include the date, time, and route of transit of the radioactive waste, or a statement of ultimate disposition of the waste. The NRC believes that at the time of filing an application for a specific license it may be too early for an exporter or importer to provide a precise shipping date and time. However, the approximate date of shipment is required to be stated. In addition, the NRC has added a requirement for the route of transit information to be

provided before the export or import takes place.

One Federal official asked how other Federal agencies would be notified of an application for a specific license. The Department of State, as lead Executive Branch agency for the review of nuclear exports, has agreed to notify other appropriate Federal agencies. For an import application, the NRC would itself seek the views of appropriate Federal and State agencies. The NRC recognizes the unique interest and responsibilities of the States under the Low-level Radioactive Waste Policy Act for safe management and disposal of LLW. Therefore, consultation with affected States is appropriate.

One commenter expressed concern that the proposed rule did not include a provision for informing LLW compacts before issuance of a specific license for import or export of radioactive waste. Section 110.70(b) has been revised to require that the Commission publish in the Federal Register a notice of receipt of an application for a specific license for the export or import of radioactive waste (other than incidental radioactive material). To promote consideration of LLW compacts' restrictions on waste disposal, the Commission will exchange information and views with interested compacts. The NRC also intends to take other reasonable steps to inform States and LLW compacts of pending requests for specific licenses for import or export of radioactive waste, but believes it to be unnecessary to spell this out in the regulations.

One commenter suggested that the Department of Transportation and the Customs Service should be able to initiate efforts to determine the validity of statements made with respect to a particular export or import. The Commission expects that if the Department of Transportation or the Customs Service encounters a questionable export, they will seek assistance from the NRC. The NRC will then work with the Department of State and other concerned parties in resolving questions raised in such circumstances.

Another commenter referred, among other things, to the proposed rule's inconsistency with NRC's below regulatory concern (BRC) policy. The BRC policy has been withdrawn by the NRC (See 58 FR 44610; August 24, 1993).

One commenter suggested offering the import and export licensing program to the Agreement States for administration over its licensees. The NRC disagrees with this suggestion. This transfer would be inconsistent with Section 274 c. of the Atomic Energy Act, which specifically provides that no agreement

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entered into under the Agreement States program shall provide for discontinuance of any NRC authority with respect to the export from or import into the United States of byproduct, source, or special nuclear material. However, NRC's export and import licensing authority does not diminish any separate authority vested in States and LLW compacts, by the Atomic Energy Act or the Low-Level Radioactive Waste Policy Act, in regard to the licensing, handling, and disposal of radioactive materials within the United States.

III. Overview of New Rule

The purpose of this rule is to conform NRC's regulations on export and import of nuclear equipment and material with the principles of the IAEA Code of Practice on the International Transboundary Movement of Radioactive Waste. The Code's guidelines state that each individual country should take the appropriate steps necessary to ensure that the international transboundary movement of radioactive waste is managed safely. This rule is designed to serve that purpose.

The final rule requires that a person file an application with the NRC for a specific license to export or import radioactive waste, including mixed waste, but distinguishes a separate category of "incidental radioactive material". Radioactive waste subject to the specific licensing requirements of Part 110 may not be exported from or imported into the United States unless the NRC has granted such a license. The export and import of incidental radioactive material (i.e., radioactive material not subject to the specific licensing controls of Part 110 that is contained in or a contaminant of any non-hazardous, non-radioactive material that is exported or imported for recycling or resource recovery) continues to be covered by the general license provisions of Part 110. However, an exporter must file an NRC Form 7 before a shipment of incidental radioactive material takes place if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms. (Use of the 100 kilogram threshold is consistent with the threshold established in § 110.27(b). This provision provides that a general license may not be used for import of source or special nuclear material in the form of irradiated fuel that exceeds 100 kilograms per shipment.) The final rule takes into account changes made in Part 110 by the final rule on Specific Licensing of Exports of Certain Alpha-Emitting Radionuclides and Byproduct

Material, published on September 26, 1994 (59 FR 48994).

The NRC has decided that it is consistent with the IAEA Code of Practice not to include the following within the definition of radioactive waste:

(These kinds of shipments will continue to enter or leave the United States under general or specific license, whichever is applicable under Part 110 to the nuclear material in question.)

1. Radioactive material in used sealed sources, or devices containing used sealed sources, being sent to any qualified manufacturer authorized to receive and possess them. This exclusion acknowledges that shipment of used sources to a qualified manufacturer should be handled as expeditiously as possible because these types of shipments help to ensure that used sources are handled in a safe and responsible manner.

2. Radioactive material that is a contaminant on equipment (including service tools) used in nuclear facilities, if the equipment is being shipped for use in another nuclear facility and is not being shipped for management or disposal. This exclusion recognizes that equipment used in nuclear facilities frequently becomes contaminated. However, this does not prevent the equipment from being used to service other nuclear facilities instead of being subject to disposal or waste management.

3. Return of military and other U.S. Government radioactive waste to the United States when destined for a Federal or military facility authorized to possess the waste (see § 110.27). This exclusion from specific licensing was requested by the Department of State.

4. Radioactive waste generated in support of U.S. Government waste research and development testing programs under international arrangements. This exclusion recognizes that shipment of the waste is not for the purpose of disposal or waste management and that the exclusion will facilitate government-to-government waste research programs.

In addition incidental radioactive material can continue to enter or leave the country without specific NRC approval. However, an export of incidental radioactive material requires the filing of an NRC Form 7 if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms.

In applying for a specific license, applicants for the export or import of radioactive waste must include the information required by §§ 110.31 and

110.32 of Part 110 for export and import of nuclear equipment and material. In addition, this final rule also requires the submission of the following information for the proposed export or import of radioactive waste: information on the volume and classification of the waste, the chemical and physical characteristics of the waste, its routing (including countries to be transited), and its disposition (including waste management). In the case of proposed imports, the information provided must include the industrial or other process responsible for generation of the waste and whether the compact and host State have agreed to accept the waste. The application must contain sufficient information to allow NRC to make a determination on whether a license should be granted. A notice of receipt of each application for a specific license for export or import of radioactive waste will be published in the *Federal Register*.

As is the case with all applications for a specific license for export of radioactive material, the review of an application for a specific license for a proposed export of radioactive waste is governed by whether licensing the proposed export would be inimical to the common defense and security interests of the United States. The Commission's review is also governed by whether the receiving country consents to receipt of the radioactive waste.

It is NRC's policy that the agency normally will not consider extraterritorial impacts. The latter policy was enunciated by the Commission in *Westinghouse Electric Corporation (Exports to the Philippines)*, CLI-80-14, 11 NRC 631 (1980), where (among other things) the Commission refused to consider the health, safety, and environmental impacts on Philippine citizens of a proposed reactor export to the Philippines on the ground that the Commission should not consider such impacts upon the citizens of another country. (Though there was some divergence in the reasoning of the judges, the Commission's decision was upheld in *NRDC v. NRC*, 647 F.2d 1345 (D.C. Cir. 1981).) The rationale for the Commission's conclusion was that the regulation of economic and industrial activities taking place within a nation's territorial boundaries is a function of the territorial sovereign.

The IAEA Code of Practice provides in clear terms that a receiving State should not permit receipt of radioactive waste for management or disposal unless the receiving country has an appropriate "administrative and

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technical capacity and regulatory structure to manage and dispose of such waste in a manner consistent with international safety standards." In contrast, the Code of Practice is far from clear when it states that it is the sending State's obligation to satisfy itself "in accordance with the receiving State's consent" that the receiving State is meeting the foregoing requirement. The Code does not explain the intended meaning of the phrase "in accordance with the receiving State's consent," and it does not indicate how the sending State is expected to satisfy itself regarding the receiving State's capability.

The NRC will expect a receiving State to indicate to the Department of State, during the process for obtaining the receiving State's consent, that it has found that it has the administrative and technical capacity and regulatory structure to manage and dispose of the waste. At this time, however, the NRC is not prepared to include provisions in this final rule that would necessitate independent and specific NRC assessments and findings and an opportunity for adjudication regarding the adequacy of the receiving State's administrative and technical capacity and regulatory structure for managing and disposing of the waste. This decision flows from (1) The ambiguity of the guiding provision in the IAEA Code, (2) the NRC's longstanding policy of not considering health, safety and environmental impacts in foreign countries, (3) the ongoing work—under the aegis of the IAEA—to develop a Convention on Safety of Radioactive Waste Management, and (4) Congressional inaction regarding implementation of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal. Nevertheless, as indicated in the notice for the proposed rule, the NRC does not contemplate any circumstances in which a license would be issued to export radioactive waste to a country without a regulated waste disposal program. Moreover, the Commission would obtain the views of the Executive Branch before approving an application for export of radioactive waste.

Note that this rule does not address on a generic basis the applicability of the National Environmental Policy Act to Part 110 specific licensing actions. Such applicability (if any) will be determined on a case-by-case basis. Note also that export licenses and (with limited exceptions not relevant here) actions related to nuclear activities are exempt from the requirements of Executive Order 12114 (44 FR 1957;

January 4, 1979), Environmental Effects Abroad of Major Federal Actions.

NRC has exclusive jurisdiction, vis-à-vis the States, for granting or denying all import licenses. However, in the case of a proposed import, the NRC recognizes the authority of LLW compacts to decide whether or not to accept an import of LLW for disposal in the compact region. The NRC will consult with interested States and LLW compacts prior to issuing an import license for LLW. The NRC will not grant an import license for waste intended for disposal unless it is clear that the waste will be accepted by a disposal facility, host State, and compact (where applicable). This will be part of the determination regarding the appropriateness of the facility that has agreed to accept the waste for management or disposal.

The NRC will consult with the Department of State and other cognizant Federal agencies regarding proposed exports of radioactive waste. In addition, in all proposed export and import cases, the NRC will ask the Department of State to consult with transit countries, as the Department of State deems appropriate, to obtain any necessary approvals pursuant to the IAEA Code of Practice.

Following review by the NRC staff, a determination will be made whether to approve or deny the application for a specific license for the import or export of radioactive waste. An import or export license issued by the NRC only authorizes the radioactive waste covered by the license to enter or exit the United States. This license alone does not authorize possession of the waste material or guarantee access to a waste management facility or a disposal site in the United States or another country.

This rule requires specific licenses for exports and imports of mixed waste. Mixed waste is waste that consists of both hazardous waste and radioactive waste. In addition to meeting NRC requirements, mixed waste must also meet Environmental Protection Agency requirements applicable to the hazardous component of the waste. The exporter or importer is responsible for ensuring compliance with those requirements.

The rule does not cover the export or import of naturally-occurring radioactive material (other than source material and byproduct material under section 11 e.(2) of the Atomic Energy Act) and accelerator-produced radioactive material. Naturally-occurring radioactive material and accelerator-produced radioactive material lie outside NRC's regulatory authority and are subject to health and

safety regulation by the States and other Federal agencies.

The new regulations in Part 110 do not affect existing or future NRC regulations in other parts of this chapter which may relate to matters covered by this rule.

The Commission notes that violation of regulations issued under sections 161b, 161i, or 161o of the Atomic Energy Act of 1954 may subject a person to criminal sanctions under section 223 of the Atomic Energy Act. The regulations in Part 110 that are not issued under §§ 161b, 161i, or 161o of the Atomic Energy Act of 1954 for the purposes of section 223 of the Act are listed in § 110.67 of Part 110, as amended by this final rule. The following regulations amended by this final rule are not listed in § 110.67: §§ 110.19, 110.20, 110.21, 110.22, 110.23, and 110.27. Violation of these sections may subject a person to criminal sanctions under section 223 of the Atomic Energy Act.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). These paperwork requirements were approved by the Office of Management and Budget, approval numbers 3150-0036 and 3150-0027.

The public reporting burden for this collection of information is estimated to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0036 and 3150-0027), Office of Management and Budget, Washington, DC 20503.

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Regulatory Analysis

NRC regulations provide strong regulatory control over the export of strategic nuclear material from a national security (nonproliferation) standpoint, but they have traditionally provided much less control over non-strategic materials. Many non-strategic imports and exports qualify for general licenses without specific review or approval by the NRC. (Domestic regulations in the United States and abroad, and international transportation regulations, have provided the primary regulatory controls for health and safety and environmental protection purposes.) In recent years, national and worldwide concerns about radioactive waste disposal practices have brought attention to the limited focus of the NRC's import and export regulations and the fact that certain types and quantities of radioactive materials, including LLW, may be imported or exported without specific authorization by the NRC and without NRC's knowledge.

The IAEA Code of Practice on the International Transboundary Movement of Radioactive Waste, which was approved by the IAEA General Conference in 1990 with strong U.S. Government support, provides that international shipments of radioactive wastes should take place only with the prior notification and consent of the sending, receiving and transit countries. The Code also provides that no receiving country should permit the receipt of radioactive waste for management or disposal unless it has the administrative and technical capacity and regulatory structure to manage and dispose of such waste in a manner consistent with international safety standards. This final rule is intended to conform U.S. regulations with these international guidelines. The final rule amends the Part 110 general license provisions applicable to the export and import of special nuclear, source, and byproduct materials to state specifically that general licenses do not provide authority to import or export radioactive waste, as defined by Part 110. Instead, persons desiring to import or export radioactive waste may do so only upon issuance of a specific license by the NRC. Persons desiring to export incidental radioactive material (i.e., radioactive material not otherwise subject to specific licensing under Part 110 that is contained in or a contaminant of any non-hazardous, non-radioactive material that is exported or imported for recycling or resource recovery of the non-radioactive component) are required to file an NRC

Form 7 if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms, thus providing information about the proposed export, but the NRC will not issue a specific license for such exports. Instead, the material may continue to be shipped under general license. Imports of incidental radioactive material continue to be subject to general licensing under Part 110, but they do not require any filing of information with the NRC under Part 110.

The rule impacts persons interested in exporting radioactive waste from, or importing radioactive waste into, the United States, and those exporting or importing incidental radioactive material (i.e., radioactive material not subject to specific licensing under Part 110 combined with non-hazardous, non-radioactive material exported or imported for recycling or resource recovery). The rule is necessary to satisfy the U.S. Government's commitment to the Code of Practice. There are no alternatives other than rulemaking for achieving the stated objective. (Alternatives to the changes made by this final rule were discussed in the ANPR published in February 1990 and the proposed rule published in April 1992.) We expect that there will be few exports and imports per year that will be covered by the new requirements established by the rule. (There should actually be little, if any, effect on those importing incidental radioactive material.) The agency also believes that, outside of having to pay a licensing fee, this regulation will have a minimal impact on the affected exporters and importers, since they should have ready access to most of the information required to be submitted to the NRC.

The NRC has considered the resource implications for the agency in developing this final rule, and based on analogous NRC experience under Part 110, it is estimated that a typical waste export or import licensing case resulting from this final rule will require 40 to 50 NRC staff hours for review and processing. It is estimated that the cost associated with such review and processing will, on the average, be approximately \$5,000 per case, though a few cases (particularly the first license applications received) may cost as much as \$10,000. The total annual cost to the NRC is expected to be approximately \$50,000, which would be offset by the collection of application fees.

To the NRC's knowledge, there is no appreciable U.S. import or export traffic in radioactive waste. A possible exception is the widely accepted

practice of returning depleted sealed radioactive sources to a manufacturer for recycle or disposal. This practice is generally encouraged by governmental authorities as a way of helping to ensure that the items are handled in a responsible manner at the end of their useful life. For this reason such shipments are excluded from the definition of "radioactive waste" in the final rule.

The changes made by this rule could affect waste management companies interested in importing radioactive waste from other countries because the imports will now require specific import licenses from the NRC, and an individual import of this type may not satisfy the licensing criteria. However, it is not clear whether this licensing requirement imposes any more difficult obstacles to a prospective waste importer than does the authority given LLW compacts to block shipments of such waste into their respective jurisdictions. (Note that the function of new § 110.43, which sets forth import licensing criteria, is primarily to bring together criteria stated in other sections of Part 110. That the host State and compact do not object to the importation of the waste will be part of the determination regarding the appropriateness of the facility that has agreed to accept the waste for management purposes or disposal.)

The final rule focuses greater attention on shipments of radioactive waste from or into the United States. This is consistent with the intent of the recommendations of the Code of Practice. The rule effectively excludes from the new requirements for specific licensing export and import of sealed sources, and devices containing sealed sources, to manufacturers qualified to receive and possess them; export and import of contaminated service equipment used in nuclear facilities, if the service equipment is being shipped for use in another nuclear facility and not for management purposes or disposal; and import of government waste returning to the United States. These exclusions from the specific licensing requirements for export and import of radioactive waste, the limited nature of the requirement for export of incidental radioactive material (confined to filing of NRC Form 7), and the absence of any new requirement with respect to import of incidental radioactive material, help to minimize the impact of the rule on commercial activities in the United States. Persons applying for a specific license will be subject to license application fees, which are currently under \$10,000 per license. (Fees for licensing services

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rendered by the NRC pursuant to 10 CFR Part 110 are covered in 10 CFR Part 170.) We do not expect that an annual fee will be assessed because we do not foresee that any significant NRC inspection or enforcement activities will result from this final rule.

Overall, the NRC believes that requiring specific licensing of radioactive waste coming into or leaving the United States for management purposes or disposal is a sound regulatory approach to help ensure that such shipments are subject to U.S. Government approval and the consent of other involved parties. Filing of an NRC Form 7 before export of incidental radioactive material (if the total amount of the shipment containing the incidental radioactive material exceeds 100 kilograms) will help ensure that the regulatory program is effective.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule establishes specific licensing requirements on the import and export of radioactive waste coming into or leaving the United States, pursuant to which certain information must be filed with the NRC. It also clarifies the application of these requirements with respect to the import and export of incidental radioactive material. The additional burden for the collection of this information is estimated to average 20 hours per response, which will increase the cost of the shipment only by a minimal amount. In all, the amendments to Part 110 are expected to result in fewer than ten new export and import licenses per year.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and, therefore, a backfit analysis is not required because these amendments do not involve any provision which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 110.

Administrative practice and procedure, Classified information, Criminal penalties, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974,

as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 110.

60 FR 55183
Published 10/30/95
Effective 8/21/95

10 CFR Part 110

RIN 3150-AD36

Import and Export of Radioactive Waste: Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule: correction.

SUMMARY: In the Federal Register on July 21, 1995 (60 FR 37556), the Nuclear Regulatory Commission (NRC) issued a final rule to establish specific licensing requirements for the import and export of radioactive waste and to clarify other import and export requirements. As part of the final rule, certain sections of NRC's export regulations were redesignated. However, in § 110.82, the amendment necessary to change a reference to reflect a redesignated section was inadvertently omitted. As a result, § 110.82 now contains an erroneous reference. This action is necessary to correct this inconsistent reference and does not result in any substantive change.

EFFECTIVE DATE: August 21, 1995.

FOR FURTHER INFORMATION CONTACT: Ronald Hauber, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone (301) 415-2344.

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Exports, Imports.

Accordingly, 10 CFR Part 110 is amended as follows:

61 FR 35600
Published 7/8/96
Effective 8/7/96

10 CFR Part 110

RIN 3150-AF51

Export of Nuclear Equipment and Materials

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to the export of nuclear equipment and materials. These amendments are necessary to conform the export controls of the United States to the international export control guidelines of the Nuclear Suppliers Group, of which the United States is a member, and to reflect the nuclear nonproliferation policies of the Department of State.

EFFECTIVE DATE: August 7, 1996.

FOR FURTHER INFORMATION CONTACT: Elaine O. Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-2341, e-mail EOH@NRC.GOV.

SUPPLEMENTARY INFORMATION: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to the export of nuclear materials and equipment. Cambodia and Vietnam are removed from the list of embargoed destinations; Algeria, Comoros, Guyana, Mauritania, Niger, St. Kitts, United Arab Emirates, Vanuatu, and Yemen Arab

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Republic are removed from the list of restricted destinations; Brazil, New Zealand, Republic of Korea, South Africa, and Ukraine are added as member countries of the Nuclear Suppliers Group (NSG) eligible to receive radioactive materials under certain general licenses for export; Austria and Finland are added as eligible countries to receive nuclear reactor components under general license for export; plants for the conversion of uranium and especially designed or prepared equipment for uranium conversion are added to the export controls of the NRC; the kinds of uranium conversion equipment and uranium enrichment equipment under NRC export licensing authority are added for clarification; exports of less than one kilogram of source or special nuclear material exported under the U.S.-IAEA Agreement for Cooperation no longer require Executive Branch review before an NRC license is issued; a general license to export source material and a general license for import are amended to correct inadvertent errors; a reference is added to clarify that some imports and exports of nuclear items are under Department of State controls; and Appendices B and L to Part 110 are amended to correct errors.

Section 110.1, which describes the scope of 10 CFR Part 110, is revised to add a reference that nuclear items on the U.S. Munitions List are subject to the export controls of the Department of State.

In § 110.8, which lists the nuclear facilities and equipment under NRC export authority, and in the appendices to Part 110, which describe the especially designed and prepared equipment under NRC export controls, the word "specially" where it appears is changed to "especially" to conform to the NSG guidelines.

Section 110.8 is amended to add uranium conversion plants and especially designed or prepared equipment for uranium conversion plants to the export authority of the NRC to conform to the NSG guidelines. Recently, the United States and other member countries of the NSG agreed to add to the NSG Trigger List (INFCIRC/254/Part 1) uranium conversion plants. This includes conversion of uranium ore concentrates to UO₃, conversion of UO₃ to UO₂, conversion of uranium oxides to UF₄ or UF₆, conversion of UF₄ to UF₆, conversion of UF₆ to UF₄, conversion of UF₄ to uranium metal, and conversion of uranium fluorides to uranium oxides. The nuclear materials and equipment designated as "trigger list" items are controlled by the NRC.

Conversion of uranium is an essential step of the nuclear fuel cycle for both civil and military programs, including the production of highly enriched uranium and plutonium. In § 110.2, a definition of "conversion facility" is added for clarification.

Exports of uranium conversion plants and equipment are presently controlled by the Department of Commerce (DOC). The addition of uranium conversion plants to the NRC licensing authority will allow the DOC to remove this item from its nuclear referral list.

Accordingly, § 110.1(b)(3), which describes nuclear-related commodities that are subject to DOC export controls, is revised to remove the reference to DOC controls on conversion plants.

In § 110.22, paragraph (c) is amended to delete the word "not" where it first appears. This action is necessary to correct an inadvertent error in a final rule published July 21, 1995 (60 FR 37556). As corrected, § 110.22(c) authorizes the export of uranium or thorium, other than U-230, U-232, Th-227, or Th-228, in individual shipments of one kilogram or less to any country listed in § 110.29, not to exceed 100 kilograms per year to any one country, except for source material in radioactive waste.

In § 110.26, Austria and Finland are added as eligible recipients of nuclear reactor components under the NRC's general license authority for export. These countries are now members of EURATOM. EURATOM has provided the necessary written assurances to the U.S. Government to permit these kinds of exports.

In § 110.27, which describes the general licenses for import, paragraph (4) is amended to delete the term "advance" to describe the kind of notification required. For some activities under § 73.27, advance notification would not apply.

In § 110.28, which lists the embargoed destinations, Cambodia and Vietnam are removed. Because President Clinton lifted the U.S. general trade embargo against Vietnam on February 3, 1995, and the embargo restrictions for Cambodia in 1993, the Executive Branch recently recommended that Cambodia and Vietnam be removed from the embargoed destinations. Both Cambodia and Vietnam are adherents to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Exports to Cambodia and Vietnam now qualify for the NRC general licensing authorizations specified in §§ 110.21 through 110.25.

In § 110.29, Algeria, Comoros, Guyana, Mauritania, Niger, St. Kitts, United Arab Emirates, Vanuatu, and Yemen Arab Republic are removed from

the restricted destinations. The Executive Branch recently recommended that these countries be removed because they are NPT adherents. Accordingly, exports to these countries now qualify for the NRC general licensing authorizations specified in §§ 110.21 through 110.25.

In § 110.30, Brazil, New Zealand, Republic of Korea, South Africa, and Ukraine are added as members of the NSG. Accordingly, these countries are eligible to receive radioactive materials under NRC general licenses.

In § 110.41, paragraph (4) is amended to reflect the Executive Branch judgment that any export of less than one kilogram of source or special nuclear material which is exported under the provisions of the U.S.-IAEA Agreement for Cooperation does not require review by the Executive Branch.

In Appendix B to Part 110, which describes the gas centrifuge equipment under NRC licensing authority, the footnote to section 1 is amended to change the specifications for filamentary materials suitable for gas centrifuge rotating components. This action is necessary to correct errors when the equations were converted from English to metric units. The current level of control catches items with a wide variety of non-nuclear, non-sensitive applications. Section 1.2 of Appendix B is amended to clarify the kinds of static components NRC controls to reflect the NSG Guidelines.

New appendices to Part 110 are added to clarify the uranium enrichment equipment and uranium conversion equipment under NRC export licensing authority to reflect the guidelines of the NSG. The appendices are illustrative only and not inclusive. Corresponding changes are made to § 110.8.

In Appendix L, which lists the byproduct materials under NRC licensing controls, the entry "Tungsten 185 (w 85)" is corrected to read "Tungsten 185 (W 185)."

The NRC has determined that this rule is necessary to reflect the Executive Branch's nuclear non-proliferation policies and to conform the export controls of the United States to the international export control guidelines of the NSG, of which the United States is a member. The rule also corrects several minor, inadvertent errors from previous rulemakings.

Because the substance of this rule involves a foreign affairs function of the United States, the notice and comment provisions of the Administrative Procedure Act do not apply (5 U.S.C. 553(a)(1)). In addition, solicitation of public comments would delay United States conformance with its

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international obligations and would thus be contrary to the public interest (5 U.S.C. 553(b)).

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB. The rule is necessary to conform the nuclear nonproliferation policies of the United States with international export guidelines.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1) and (c)(2). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements in §§ 110.26, 110.31, 110.32, 110.53 and the use of Form NRC 7 were approved by the Office of Management and Budget, approval numbers 3150-0036 and 3150-0027.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Analysis

The final rule eliminating the requirement for a specific license in some circumstances should have a positive economic effect on U.S. export business. U.S. exporters can ship nuclear equipment and materials under the NRC general license authority to additional foreign markets without the expense of license application fees, the paperwork burden, time delays, and uncertainties in delivery. For the first time, Cambodia and Vietnam are eligible to receive certain NRC nuclear materials under general license. Austria and Finland are now eligible to receive nuclear reactor equipment under NRC general license. In addition, Brazil, New Zealand, Republic of Korea, South Africa, Ukraine, Algeria, Comoros, Guyana, Mauritania, Niger, St. Kitts, United Arab Emirates, Vanuatu, and

Yemen Arab Republic can now receive certain nuclear materials under NRC general licenses.

In transferring export authority of uranium conversion plants and equipment from the DOC to NRC export authority, the Commission was aware of a potential detrimental impact on exporters because of the license fee imposed by NRC for each license application submitted. However, according to DOC export licensing data, the DOC issued only one export license for conversion equipment in the past five years, at a value of \$317,000. In view of this information, the NRC continues to believe that the economic impact of the rule on U.S. companies is not significant.

There are no alternatives for achieving the stated objective. This rule conforms NRC's export controls to the international export guidelines of the NSG. Thus, the regulation is required to satisfy international obligations of the United States. The foregoing discussion constitutes the regulatory analysis for this final rule.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this final rule because these amendments do not include any provisions that would require backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 110

Administrative practice and procedure, Classified information, Criminal penalties, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Scientific equipment.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 110.

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART 140

FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS

STATEMENTS OF CONSIDERATION

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 31282
Published 8/18/88
Effective 9/19/88

10 CFR Part 140

**Facility Form Nuclear Liability
Insurance Policy; Miscellaneous
Amendments**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to make several minor changes in the Facility Form nuclear liability insurance policy furnished as evidence of financial protection. The two nuclear insurance pools have submitted endorsements to the Facility Form policy that make available a single insurance policy to cover onsite worker claims. This new Master Worker Policy reflects different rating and underwriting treatment than is utilized in the Facility Form policy. The supplementary insurance provided by the new policy enhances protection to the public since payments under its provisions for routine claims by onsite nuclear workers will not reduce the financial protection for the public under the primary and secondary nuclear liability insurance policies provided as evidence of financial protection under the Price-Anderson Act.

EFFECTIVE DATE: September 19, 1988.

FOR FURTHER INFORMATION CONTACT: Ira Dimitz, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-1289.

SUPPLEMENTARY INFORMATION: On April 27, 1988, the Commission published a proposed rule in the Federal Register (53 FR 15049) requesting comments on endorsements to the Facility Form nuclear liability insurance policy and a new Facility Form Policy submitted to the Commission by two nuclear

insurance pools, Nuclear Energy Liability Insurance Association (NELIA) and Mutual Atomic Energy Liability Underwriters (MAELU). The Facility Form of insurance policy along with endorsements to these policies has been accepted by the Commission as evidence of the financial protection required under section 170 of the Atomic Energy Act of 1954, as amended. The evidence of financial protection accepted by the Commission assures the availability of funds to compensate the public for the financial consequences of a catastrophic nuclear accident.

Effective January 1, 1988, the Pools modified the manner in which coverage was made available to operators of nuclear reactors and others. The change is confined to tort claims by onsite nuclear workers that arise from circumstances unrelated to an extraordinary nuclear occurrence. Financial protection must continue to include coverage for such claims by onsite workers and the revised program the Pools are making available does so by means of a new supplementary insurance policy for tort claims from onsite nuclear workers. The new Nuclear Energy Liability Policy (Facility Worker Form) was effective as of January 1, 1988 and is a part of the Facility Form policy. The new Facility Worker Form covers only the claims of onsite workers first employed in the nuclear industry on or after January 1, 1988 ("new workers"). Claims of all other workers ("old workers") will continue to be covered under present Facility Forms for ten more years, until December 31, 1997, at which time coverage for claims from old workers could be added to the new Facility Worker Form, or be otherwise insured.

Coverage for old workers will be changed by an endorsement to Facility Forms. One such endorsement (Form NE-64) was attached to all Facility Forms issued before January 1, 1988, and Form NE-66 was attached to all Facility Forms issued on and after that date. Both forms allow coverage under the Facility Forms to which they are attached to continue for claims made by old workers on or before December 31, 1997.

The Facility Worker Form is a Master Policy that provides a single aggregate

limit of liability shared by insured entities under all Certificates of Insurance issued to provide insurance under the Master Policy. The Master Worker Policy that was issued by the Pools provides a single aggregate liability limit and has been designed as a prototype for a longer term, perhaps, continuous, replacement program based on experience. Because the new Master Worker Policy was designed as a prototype, a 5-year term was selected on the basis of negotiations between the Pools and their insureds. It is anticipated that before the Master Worker Policy expires, a renewal or replacement policy will be developed taking into account the additional recommendations of insureds and others. A Certificate of Insurance was issued under each policy to every facility operator desiring to purchase the coverage. The Master Worker Policy issued by NELIA has a Policy Aggregate Limit of \$124 million; the MAELU Policy Aggregate Limit is \$30 million.

To minimize the need for Certificate holders to apply for reinstatement of the Policy Aggregate Limit as is required by the Commission, the Pools will automatically reinstate up to the limit of \$160 million. The policies can be further reinstated by agreement of the parties.

The supplementary insurance provided by the Facility Worker Form enhances protection for the public since payments under its provisions for routine claims by onsite nuclear workers will not reduce the financial protection for the public under the primary and secondary nuclear liability insurance policies provided as evidence of financial protection under the Price-Anderson Act. Conversely, payments under primary and secondary policies will not operate to reduce the coverage under the Facility Worker Form for routine claims by onsite workers.

It is important to note that the rating procedure applicable to reactors to reflect the risk of a catastrophic accident that presumably would result in a large number of offsite claims is not appropriate to the lesser, routine claims from onsite workers. The premium for the Facility Worker Form will be regulated by the "Industry Retrospective Rating Plan Premium Endorsement" (Form NE-W-1), which reflects the

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different kind of risk covered by the new policy.

The change in the insurance available from the Pools effective as of January 1, 1989 keeps intact the coverage that has been available to licensees with respect to claims from the public. By providing separate coverage for routine claims from new workers, and eventually from old workers as well, the protection provided to the public, to onsite workers, and to persons who may be liable is enhanced. The Facility Form has been accepted by the Commission as evidence of financial protection from licensees. The Facility Form, as modified by Forms NE-64 and NE-66, and the Facility Worker Form, with its accompanying Certificate of Insurance and premium endorsements, are acceptable to the Commission as evidence of financial protection required by the Price-Anderson Act.

Only one respondent, American Nuclear Insurers, submitted comments prior to the May 27, 1988 comment expiration date. The comments were editorial corrections to the proposed rule and have been incorporated in the effective rule.

Environmental Impact Categorical Exclusion

The Commission has determined that this rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0039.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission hereby certifies that this rule will not have a significant economic effect on a substantial number of small entities. This rule applies only to nuclear power plant licensees which are electric utility companies dominant in their service areas. These licensees are not "small entities" as set forth in the Regulatory Flexibility Act and do not meet the standards set forth for small businesses in Small Business Administration regulations in 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule, and therefore, that a

backfit analysis is not required for this rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 140

Extraordinary nuclear occurrence, Insurance, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 140.

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

54 FR 24157
Published 6/6/89
Effective 7/1/89

10 CFR Part 140

RIN 3150-AD08

Financial Protection Requirements and Indemnity Agreements; Miscellaneous Amendments Necessitated By Changes in the Price-Anderson Act

AGENCY: Nuclear Regulatory Commission.

ACTION: Final Rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to conform to changes made to the Price-Anderson Act by "The Price-Anderson Amendments Act of 1988," which was enacted on August 20, 1988. The Commission is also amending its regulations to increase the level of the primary layer of financial protection required of certain indemnified licensees. The provisions of Section 170 of the Atomic Energy Act of 1954, as amended, require production and utilization facility licensees to have and maintain financial protection to cover public liability claims. Therefore, the Commission is amending its regulations to coincide, as statutorily required, with the increase in the level of the primary layer of insurance provided by private nuclear liability insurance pools. This change would provide additional insurance to pay public liability claims arising out of a nuclear incident.

EFFECTIVE DATE: July 1, 1989.

FOR FURTHER INFORMATION CONTACT: Ira Dinitz, Policy Development and Financial Evaluation Section, Policy Development and Technical Support Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-1289.

SUPPLEMENTARY INFORMATION: On August 20, 1988, "The Price-Anderson Amendments Act of 1988" was enacted as Pub. L. 100-408. This legislation modifies and extends for 15 years (to August 1, 2002) the Price-Anderson Act. On December 20, 1988, the Commission published a proposed rule in the Federal Register (53 FR 51120) requesting comments on amending certain provisions of 10 CFR Part 140 to conform to changes made by Pub. L. 100-408. Two nonsubstantive comments were received on the proposed rule. The first commenter, without indicating a need, requested an extension of the comment period, which the NRC did not believe was warranted. The other commenter requested specific incorporation of certain other regulatory changes, which has been done. First, the requirement for the imposition of a surcharge above the \$63 million deferred premium assessment, as specified in subsection 170a.(1)(E) of the Act, has been incorporated into the regulations. Second, the regulations have been clarified to specify that the \$10 million annual deferred premium would be assessed on a "per incident" basis as implied in the Act and as clearly indicated in the legislative history.

Section 170 of the Atomic Energy Act of 1954, as amended, (the Act) requires production and utilization facility licensees to have and maintain financial protection to cover public liability claims resulting from a nuclear incident or precautionary evacuation. Section 170 also requires the Nuclear Regulatory Commission to indemnify the licensee and other persons indemnified, up to the statutory limitation on liability, against public liability claims in excess of the amount of financial protection required. Subsection 170b. of the Act requires that for facilities designed for producing substantial amounts of electricity and having a rated capacity of 100,000 electrical kilowatts or more, the amount of financial protection required shall be the maximum amount available from private sources. Primary financial protection may be in the form of private insurance, private contractual indemnities, self-insurance or other proof of financial responsibility, or combination of such measures.

The insurers who provide the nuclear liability insurance, American Nuclear Insurers (ANI) and Mutual Atomic Energy Liability Underwriters (MAELU), have advised the Commission that the

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maximum amount of primary nuclear energy liability insurance available has been increased from \$160 million to \$200 million. Pursuant to the provisions of subsection 170b. of the Act, the amount of primary financial protection required for facilities having a rated capacity of 100,000 electrical kilowatts or more will be increased to \$200 million.

Environmental Impact: Categorical Exclusion

The Commission has determined that this rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this rule.

Paperwork Reduction Act Statement

This rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0039.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)) the Commission hereby certifies that this rule will not have a significant economic effect on a substantial number of small entities. This rule applies only to nuclear power plant licensees which are electric utility companies dominant in their service areas. These licensees are not "small entities" as set forth in the Regulatory Flexibility Act and do not meet the standards set forth for small businesses in Small Business Administration regulations in 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule, and therefore, that a backfit analysis is not required for this rule. These amendments are required to conform NRC regulations to statutory directives and do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 140

Extraordinary nuclear occurrence, Insurance, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 140.

56 FR 64943
Published 12/13/91
Effective 1/13/92

Nuclear Power Plant License Renewal

See Part 54 Statements of Consideration

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

58 FR 42851
Published 8/12/93
Effective 8/20/93

10 CFR PART 140 **RIN 3150-AE75**

Adjustment of the Maximum Standard Deferred Premium

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to increase the maximum standard deferred premium, presently established at \$63 million per reactor per accident (but not to exceed \$10 million in any one year), to \$75.5 million per reactor per accident (but not to exceed \$10 million in any one year),

in accordance with the aggregate percentage change of 19.9 percent in the Consumer Price Index (CPI) from August 1988 through March 1993.

EFFECTIVE DATE: August 20, 1993.

FOR FURTHER INFORMATION CONTACT: Ira Dinitz, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC. 20555, telephone (301) 504-1289.

SUPPLEMENTARY INFORMATION: Section 15 of Public Law 100-408, the Price-Anderson Amendments Act of 1988 ("the Act") enacted on August 20, 1988, requires the Commission to adjust the maximum standard deferred premium (presently \$63 million) for inflation. Section 15 added a new Section 170t. to the Atomic Energy Act of 1954, as amended ("AEAct"). Section 170t. provides as follows:

t. INFLATION ADJUSTMENT.—(1) The Commission shall adjust the amount of the maximum standard deferred premium under subsection b.(1) [Section 170b.(1) of the AEAct] not less than once during each 5-year period following the date of the enactment of the Price-Anderson Amendments Act of 1988 in accordance with the aggregate percentage change in the Consumer Price Index since—

(A) such date of enactment, in the case of the first adjustment under this subsection; or

(B) the previous adjustment under this subsection. (2) For purposes of this subsection, the term "Consumer Price Index" means the Consumer Price Index for all urban consumers published by the Secretary of Labor.

The inflation adjustment required by Section 170t.(1)(A) of the AEAct must be in accordance with the aggregate percentage change (since August 1988) in the Consumer Price Index (CPI) for all urban consumers published by the Secretary of Labor. The aggregate percentage increase in the CPI from August 1988 through March 1993 is 19.9 percent. This number is derived by dividing the September 1988 CPI index by the March 1993 CPI index. The new maximum standard deferred premium, computed by multiplying \$63 million by 0.199 and adding the product to \$63 million, will be \$75.5 million.

Therefore, as of August 20, 1993, 10 CFR 140.11(a)(4) will require that large nuclear power plant licensees maintain, in addition to \$200 million in primary financial protection, a new maximum standard deferred premium of \$75.5 million per reactor per accident (but not to exceed \$10 million in any one year).

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The next inflation adjustment in the amount of the standard deferred premium will be made not later than August 20, 1998, and will be based on the incremental change in the CPI since March 1993.

Because this inflation adjustment by the Commission is essentially ministerial in nature (e.g., multiplying \$63 million by the percentage increase in the CPI published by the Secretary of Labor and adding this amount to \$63 million), the Commission finds that there is good cause for omitting notice and public procedure (in the form of a proposed rule) on this action as unnecessary. In view of the impending statutory deadline for implementing this change to its regulations, the Commission finds that there exists good cause for making the rule effective on August 20, 1993 (less than 30 days after publication of the final rule in the **Federal Register**).

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0039.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant impact upon a substantial number of small entities. The rule will potentially affect licensees of approximately 116 nuclear power reactors. Nuclear power plant licensees do not fall within the definition of small businesses as defined in Section 3 of the Small Business Act (15 U.S.C. 632), the Small Business Size Standards of the Small Business Administration (13 CFR part 121), or the Commission's Size Standards (50 FR 50241; December 9, 1985).

Backfit Analysis

The NRC has determined that this final rule does not impose a backfit as defined in 10 CFR 50.109(a)(1) because it is statutorily required. Therefore, a

backfit analysis is not required for this rule.

List of Subjects in 10 CFR Part 140

Criminal penalty, Extraordinary nuclear occurrence, Insurance, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954 (as amended), the Energy Reorganization Act of 1974 (as amended), and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 140:

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

**PART
150**

**EXEMPTIONS AND CONTINUED REGULATORY AUTHORITY
IN AGREEMENT STATES AND IN OFFSHORE WATERS
UNDER SECTION 274**

STATEMENTS OF CONSIDERATION

52 FR 8225
Published 3/17/87
Effective 7/14/87

Licenses and Radiation Safety
Requirements for Well Logging

See Part 39 Statements of Consideration

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General
Information

See Part 1 Statements of Consideration

52 FR 41699
Published 10/30/87
Effective 10/30/87

10 CFR Part 150

Minor Nomenclature Amendment;
Statement of Organization and General
Information

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations pertaining to Agreement States and Offshore Waters to correct an oversight that was made when a final rule regarding the NRC's organizational structure was recently published in the *Federal Register*. This amendment corrects references to a now defunct unit of the agency. The amendment is necessary to inform the public and affected licensees of the nomenclature changes.

EFFECTIVE DATE: October 30, 1987.

FOR FURTHER INFORMATION CONTACT:
David L. Meyer (301) 492-7086.

SUPPLEMENTARY INFORMATION: On August 21, 1987, the NRC published a final rule that completely revised 10 CFR Part 1, "Statement of Organization and General Information," and made numerous conforming amendments to other parts of the 10 CFR to reflect chiefly nomenclature changes (52 FR 31601). Overlooked in that revision was a section in 10 CFR Part 150 that contained multiple references to a now defunct unit of the agency. This amendment corrects that oversight.

Because this amendment deals solely with agency organization and procedures, the notice and comment provisions of the Administrative Procedure Act do not apply under 5 U.S.C. 553(b)(A). The amendment is effective upon publication in the *Federal Register*. Good cause exists to dispense with the usual 30-day delay in the effective date, because the amendment is of a minor and administrative nature dealing with the agency's organization.

**Environmental Impact; Categorical
Exclusion**

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501, *et seq.*).

Regulatory Analysis

This final rule pertains solely to the organization of the NRC; therefore, no backfit analysis has been prepared.

List of Subjects in 10 CFR Part 150

Hazardous materials—transportation,
Intergovernmental relations, Nuclear

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materials, Penalty, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendment to 10 CFR Part 150.

52 FR 49362
Published 12/31/87
Effective 2/1/88

Completeness and Accuracy of Information

See Part 2 Statements of Consideration

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear Reactor Regulation

See Part 19 Statements of Consideration

53 FR 31651
Published 8/19/88
Effective 9/19/88

Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

See Part 72 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

55 FR 10397
Published 3/21/90.
Effective 4/20/90

Preserving the Free Flow of Information to the Commission

See Part 30 Statements of Consideration

56 FR 20345
Published 5/3/91
Effective 7/14/91

10 CFR Part 150

Recognition of Agreement State Licenses; Well-Logging, Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; Correction.

SUMMARY: This document makes a minor correction to the NRC's regulations concerning the recognition of Agreement State licensees. This action is necessary to reinstate a cross

reference that was inadvertently omitted, and to remove a cross reference that was inadvertently retained in a subsequent amendment to this regulation.

EFFECTIVE DATE: July 14, 1987.

FOR FURTHER INFORMATION CONTACT: Michael T. Lesar, Chief, Rules Review Section, Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: 301-492-7758.

SUPPLEMENTARY INFORMATION: On March 17, 1987, the Nuclear Regulatory Commission published in the *Federal Register* (52 FR 8241) a final rule which established 10 CFR part 39—Licenses and Radiation Safety Requirements for Well-Logging. This final rule contained a listing of conforming amendments to 10 CFR chapter I including an amendment to § 150.20(b). The amendment to § 150.20(b) in the March 17, 1987 final rule removed an obsolete cross reference to §§ 70.60 and included cross references to part 39. This final rule also made conforming amendments to § 150.20(b). In the December 31, 1987 amendments to § 150.20(b), the conforming amendments made on March 17, 1987, were inadvertently omitted. This document is necessary to restore the appropriate cross references to part 39.

List of Subjects for Part 150

Criminal penalties, Hazardous materials, Transportation, Intergovernmental relations, Nuclear materials, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

56 FR 40664
Published 8/15/91
Effective 9/16/91

Revisions to Procedures to Issue Orders; Deliberate Misconduct by Unlicensed Persons

See Part 2 Statements of Consideration

56 FR 54778
Published 10/23/91
Effective 8/15/91

10 CFR Part 150

RIN 3150-AD53 and RIN 3150-AD38

Revisions to Procedures to Issue Orders; Deliberate Misconduct by Unlicensed Persons, Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

SUMMARY: This document corrects a final rule published on August 15, 1991 (56 FR 40664), which establishes procedures to be used in issuing orders to licensed and unlicensed persons to provide reasonable assurance that licensed activities will be conducted in a manner that will protect the public health and safety. This action is necessary to remove duplicate material and restore the appropriate cross references to part 39.

EFFECTIVE DATE: August 15, 1991.

FOR FURTHER INFORMATION CONTACT: Michael T. Lesar, Chief, Rules Review Section, Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: 301-492-7758.

SUPPLEMENTARY INFORMATION: In the August 15, 1991, edition of the *Federal Register*, in the third column of page 40693, make the following corrections to the introductory text of § 150.20(b):

1. On line six remove the words "(a) through (g)";
2. On lines eight and nine remove the words " § 70.7 of part 70 of this chapter";
3. On line eleven between the words "part" and "of" insert the following: "34, §§ 39.15 and 39.31 through 39.77 inclusive of part 39"

57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 55062
Published 11/24/92
Effective 12/24/92

Clarification of Statutory Authority for Purposes of Criminal Enforcement

See Part 11 Statements of Consideration

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58 FR 52406
Published 10/8/93
Effective 11/8/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities*

See Part 19 Statements of Consideration

58 FR 54646
Published 10/22/93

*Whistleblower Protection for
Employees of NRC-Licensed Activities:
Correction*

See Part 19 Statements of Consideration

59 FR 35618
Published 7/13/94
Effective 10/11/94

*Licensee Submittal of Data in
Computer-Readable Form*

See Part 74 Statements of Consideration

60 FR 24549
Published 5/9/95
Effective 5/9/95

*Changes to NRC Addresses and
Telephone Numbers*

See Part 2 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION
RULES and REGULATIONS
TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART
170

**FEES FOR FACILITIES, MATERIALS, IMPORT AND EXPORT LICENSES,
AND OTHER REGULATORY SERVICES UNDER THE ATOMIC ENERGY
ACT OF 1954, AS AMENDED**

STATEMENTS OF CONSIDERATION

52 FR 31601
Published 8/21/87
Effective 8/19/87

Statement of Organization and General
Information

See Part 1 Statements of Consideration

53 FR 6137
Published 3/1/88
Effective 3/1/88

Relocation of Office of Nuclear
Reactor Regulation

See Part 19 Statements of Consideration

53 FR 43419
Published 10/27/88
Effective 10/27/88

*Relocation of NRC's Public Document
Room; Other Minor Nomenclature
Changes -*

See Part 1 Statements of Consideration

53 FR 52632
Published 12/29/88
Effective 1/30/89

Revision of Fee Schedules

See Part 171 Statements of Consideration

54 FR 15372
Published 4/18/89
Effective 5/18/89

*Early Site Permits; Standard Design
Certifications; and Combined Licenses
for Nuclear Power Reactors*

See Part 52 Statements of Consideration

54 FR 25658
Published 6/16/89

10 CFR Part 170

RIN 3150-AC61

**Early Site Permits; Standard Design
Certifications; and Combined Licenses
for Nuclear Power Reactors**

Correction

In rule document 89-8832 beginning on
page 15372 in the issue of Tuesday, April
18, 1989, make the following correction:

§ 170.21 [Corrected]

On page 15400, in the first column, in
the table, the heading ".Nuclear Power
Reactors" should read "A.Nuclear
Power Reactors".

54 FR 50735
Published 12/11/89.

*Early Site Permits; Standard Design
Certifications; and Combined Licenses
for Nuclear Power Reactors; Correction*

See Part 52 Statements of Consideration

PART 170 STATEMENTS OF CONSIDERATION

55 FR 21173
Published 5/23/90.
Effective 7/2/90

10 CFR Part 170

RIN 3150-AD23

Revision of Fee Schedules: Radioisotope Licenses and Topical Reports

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations by revising its schedules of fees charged for licensing and regulatory services provided by the NRC. The revised schedule of fees will more completely recover NRC costs incurred in providing services to identifiable recipients, including both materials and facility applicants. The revision is based on the FY 1990 budgeted costs of providing services in accordance with the Commission's license fee guidelines and evaluation of public comments on the proposed rule. All applicants and licensees currently subject to fees under NRC regulations are affected by the rule.

EFFECTIVE DATE: July 2, 1990.

FOR FURTHER INFORMATION CONTACT:
Lee Hiller, Deputy Controller, U.S.
Nuclear Regulatory Commission,
Washington, DC 20555, Telephone (301)
492-7351.

SUPPLEMENTARY INFORMATION:

- I Background
- II Responses to Comments
- III Changes Included in the Final Rule
- IV Section-by-Section Analysis
- V Environmental Impact: Categorical
Exclusion
- VI Paperwork Reduction Act Statement
- VII Regulatory Analysis
- VIII Regulatory Flexibility Certification
- IX Backfit Analysis

I. Background

On December 1, 1989 (54 FR 49763-49771), the Commission published in the **Federal Register** a notice of proposed rulemaking for revisions to 10 CFR part 170 ("Fees for Facilities and Materials Licenses and Other Regulatory Services * * *"). This action was necessary for the Commission to update the fee schedules in part 170 to more completely recover costs incurred by the Commission in providing services to

identifiable recipients and to encourage the continued submittal of topical reports.

The notice of proposed rulemaking invited interested persons to submit written comments for consideration in connection with the proposed amendments on or before January 30, 1990. In addition, the Commission's staff has been available to answer any questions concerning the proposed rulemaking. Three public meetings were held in Regions I, III, and IV to discuss the proposed changes and consider any questions. A total of eleven industry and Agreement State representatives attended the three meetings. The Commission placed a copy of the workpapers relating to the proposed rule in its Public Document Room at 2120 L Street NW., Washington, DC, in the lower level of the Gelman Building.

II. Responses to Comments

The Commission received twenty-nine (29) letters commenting on the proposed rule. Eighteen letters were from persons concerned with materials license fees (including five Agreement States) and eleven letters were from utility licensees and owners groups concerned with fees for part 50 facilities. The comments fell into the following broad categories:

1. Increases in fees.
2. Reestablishment of a ceiling for topical report reviews.
3. Payment of fees by electronic fund transfer (EFT).
4. Exemption provisions.
5. Other comments.

1. Increases in fees:

Comment. Commenters' main concern is that the proposed increases were substantial and businesses would find it very difficult to escalate prices on a percentage basis as intended by the proposed rule. In several specific areas such as teletherapy and nuclear medicine (Categories 7A and 7C), manufacturing (Category 3B) and research and development (Category 3M) commenters were concerned not only about the proposed increases but why, in some instances, the proposed cost for an application for renewal would exceed the cost of a new application. Some commenters also indicated that inspection fees are too high because, in some instances, inspections take no more than one hour to perform.

Response. The Commission agrees that the proposed increases in many instances may be substantial. However, as was pointed out in the proposed rule, the last revision to the materials license fees in 10 CFR part 170 was in 1984 and the fees in that schedule were based on FY 1981 data. In terms of cost data, ten

years have elapsed since the schedules were revised. During that time, the professional licensing staff-hour rate increased from \$58 per hour to \$92 per hour, a 59% increase. The professional inspection staff-hour rate has increased from \$53 per hour to \$92 per hour, a 74% increase. One commenter who supported the proposed changes pointed out that the hourly rate increases have been on an average of 6 to 7 percent per year, barely keeping pace with inflation. In addition, there have been changes in the emphasis on some of the programs resulting in greater professional staff effort being expended for those particular categories of licenses. With respect to the question of why renewals require more time than new licenses for Category 3B, this type of license often has frequent amendments to add new products or to change existing descriptions of products or processes. The renewal process often requires a review of many documents to determine which descriptions are current and which have been superseded; a situation that does not occur with a new application. In addition, companies applying for new licenses will on the average operate simpler programs using both smaller activities and varieties of radioisotopes than are utilized by the existing licensees.

License renewals in Category 7C require more time on the average than new applications because the average medical use licensee renewing a license is an institution offering a full variety of diagnostic services and often some therapy services. The average applicant for a new medical use license is a small clinic or private physician who is requesting authorization to perform one or a few medical procedures. Because of the total revision of 10 CFR part 35 which became effective in 1987, new applicants and licensees renewing medical use licenses must submit complete applications and descriptions for all activities to be authorized. Thus the simplifications in the licensing process due to the part 35 revision have helped reduce review time for the simpler programs being initiated more than for the existing programs with more activities to describe.

Some commenters, particularly Agreement States, support the revision in that it strengthens the fee schedules for categories of licenses regulated by Agreement States. The Commission will proceed in adjusting the fees in part 170 because the Independent Offices Appropriation Act of 1952 (IOAA) requires that fees be updated as necessary to more fully recover the Commission's costs of processing

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applications and conducting inspections. With respect to inspections, the inspection fee covers more than just the time an inspector may spend on the premises conducting the inspection. As indicated in § 170.12(g) the inspection fee includes preparation time, time on site and documentation time as well as any associated contractual services costs but excludes the time involved in the processing and issuance of a notice of violation or civil penalty.

2. Reestablishment of a ceiling for topical report reviews:

Comment. Nine commenters addressed the reestablishment of a ceiling for topical reports. Several commenters supported the \$50,000 ceiling as an appropriate level for reestablishment. One suggested that if the ceiling were reestablished it should be set at the previous rate of \$20,000. Most of the commenters in this area indicated that the public interest, as well as the interests of NRC and the industry, are better served by encouraging the submittal of topical reports. Two commenters suggested that the \$50,000 ceiling be made retroactive to January 30, 1989, the date the ceilings for topical reports were removed.

Response. The Commission has reestablished the fee ceiling for the review of topical reports at \$50,000 and the review of any amendments, revisions, or supplements to topical reports at \$50,000. This figure represents an adjustment of a previous ceiling of \$20,000 to reflect the effects of inflation and is an amount which approximates the median of topical report fees over \$20,000 charged in 1989. As a matter of policy, the Commission will exempt all review costs that exceed \$50,000 for those topical report reviews completed on or after January 30, 1989. Thus, applicants for the review of topical reports or for amendments, revisions, or supplements to topical reports will be treated equally for those reports completed on or after January 30, 1989, because all will be subject to the \$50,000 fee ceiling.

3. Payment of fees by electronic fund transfer (EFT):

Comment. Six commenters addressed the proposal to require those bills in excess of \$5,000 to be paid by EFT. One commenter endorsed the concept pointing out that he routinely uses EFT. Another commenter indicated that specific payment instructions should accompany the bill. Other commenters indicated that EFT is not justified. They pointed out that for many companies EFT is not a common practice, would require special action by them as well as the expenditure of resources to

accomplish, and at times, is not available or desirable to use.

Response. The Commission has established the \$5,000 requirement for EFT and will provide specific instructions on its use for those bills issued for more than \$5,000. This is consistent with U.S. Department of the Treasury cash management initiatives and will encourage timely receipts and deposits of monies owed to the Federal Government.

4. Exemption provisions:

Comment. Five commenters addressed the changes being proposed in the exemption provisions of § 170.11 (a)(3), (a)(4) and (a)(11). The comments ranged from the suggestion of totally eliminating all fee exemptions so that all materials licensees are treated equally from a fee standpoint to that of indicating that exemptions are necessary and those suggested in the proposed rule are appropriate. One commenter was concerned that exemptions shift a greater cost burden to those institutions/organizations that are not exempt. One commenter suggested that the language in § 170.11(a)(4) be clarified by using the wording in the Section-by-Section Analysis.

Response. The Commission will maintain the exemption provisions in § 170.11 and has made clarifying language changes to 10 CFR 170.11(a)(4) as suggested. The Commission will establish a new exemption provision in § 170.11(a)(11) to provide that Indian tribes and Indian organizations that are Federally recognized as eligible for services provided by the Secretary of the Interior because of their status as Indians will be exempt from payment of fees. The exemption in § 170.11(a)(11) is modified so that the exemption does not cover licenses authorizing distribution of products or the offering of consultant services. This is consistent with the exemption provisions of § 170.11 (a)(4) and (a)(9).

Establishing a new exemption does not shift a greater cost burden to those who pay fees. The amount of the fee assessed represents the average time to review a licensing action or to conduct an inspection for those licensees subject to fees as well as those exempt from fee payment. The costs for processing licensing actions or conducting inspections for exempt licensees are not recovered. There is no attempt to shift that cost to those who are paying fees.

5. Other comments:

a. One commenter suggested the elimination of the initial \$150 application fee required in § 170.31 for those reviews based on full costs. He indicated that it adds an unnecessary

administrative cost for initiating, processing and tracking the payment for the licensee as well as the NRC.

Response. The Commission agrees and has made the necessary changes to eliminate the \$150 filing fee in § 170.31. This is consistent with a similar change that was made with respect to filing fees in § 170.21 effective January 30, 1989.

b. Two commenters noted the inconsistency between 10 CFR 52.55 "Duration of Certification" which provides a 15 year validity of design certificates and § 170.12 Payment of Fees, paragraph (e)(2)(ii)(C) and footnote 4 to § 170.21 which mandate a 10 year period over which review costs are recovered for designs not referenced in utility applications.

Response. The Commission agrees and part 170 has been amended to correct this inconsistency.

c. One commenter suggested that the Commission assess fees for inspection of general licensees because these costs are not currently recovered. In addition, the commenter suggested that the Commission reduce the time available for reciprocity currently at 180 days. He indicated that this would place licenses in the NRC jurisdiction in a more competitive economic position with some Agreement State licensees who do not pay fees. At the present time, an Agreement State licensee who does not pay fees can operate for six months in a non-Agreement State in competition with the NRC licensee who has to pay fees.

Response. The Commission will continue its current policy of not assessing fees to NRC general licensees except for those related to spent fuel storage as addressed in the ongoing rulemaking published for comment on May 5, 1989 (54 FR 19379). In a majority of cases, general licensees are not required to file an application, do not receive specific approvals and are infrequently inspected. With respect to the reciprocity provision, the Commission recognizes that a difference exists between NRC and Agreement State length of reciprocity and whether or not fees are assessed. Although reciprocity is a matter of compatibility with respect to Agreement State regulations, the NRC has concentrated only on the radiation safety-related criteria for granting reciprocity and not the administrative functions such as length of time and whether or not a fee is required.

d. One commenter suggested that reasonable limits be established to prevent excessive routine inspections of small programs. The commenter felt that it is unacceptable to be charged an

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inspection fee any time an inspector chooses to visit a facility.

Response. Similar comments were received on the June 27, 1988, proposed rule (53 FR 24077). These comments were addressed in the final rule published on December 29, 1988 (53 FR 52833). Effective January 30, 1989, the Commission removed the billing frequencies for routine inspections of small programs from § 170.31. The Commission indicated at that time that the routine inspection program is a structured program and that the frequency of inspections is not generally expected to be more frequent than that stipulated in the previous regulation.

e. One commenter requested that the Commission consider establishing a separate fee category for portable gauges and lower the inspection fee, and consider this action for gas chromatographs as well. A similar comment was received on the June 27, 1988, proposed rule that part 170 be revised to create a new category for diagnostic devices. The commenter believes that doctors should be charged the same for medical use of an imaging scope as industrial users.

Response. Portable gauge and gas chromatograph licenses and licenses which authorize human use of diagnostic devices are grouped for fee purposes with other similar license types, such as fixed gauge licenses and other medical uses of byproduct, source or special nuclear material. The fees for these categories of licenses reflect the Commission's average cost to review applications and perform inspections of these programs. At this time, it is not practical to develop a separate category for each type of license or authorization or for each manufactured item. Establishing a separate fee category for portable gauges, gas chromatographs and diagnostic devices could have an adverse impact on licensees because they would be subject to multiple fee categories if their licenses include items other than portable gauges, gas chromatographs, or medical uses of byproduct, source or special nuclear material. The Commission realizes that in using the average-cost method instead of the full-cost method for determining license fees, variations will exist between licenses grouped within a single category. However, in developing the current fee categories, every effort was made to group licenses in the most logical and equitable manner. The Commission, therefore, has determined that the fees in this final rule are appropriate for portable gauge, gas chromatograph, and medical use type licenses.

f. One person commenting on the June 27, 1988, proposed revision to § 170.31 indicated that there was a disparity between the amount of the fee charged for licenses authorizing calibration services and that charged for other types of licenses such as manufacturing and distribution licenses.

Response. Even though comments were received on the materials portion of the fee schedules in 10 CFR part 170 which became effective January 30, 1989, the Commission made no changes to the fee schedule for small materials licenses indicating that adjustments would be made in 1990. Based on supporting information from the Office of Nuclear Material Safety and Safeguards, fee category 3N has been modified with a provision added that licenses which authorize leak test services and/or calibration services only will be subject to fee Category 3P. This change was highlighted in the proposed rule (54 FR 49765).

III. Changes Included in the Final Rule

The changes included in the final rule are outlined below. Any differences between the final rule and the proposed rule are explained in the following discussion. Most of these changes were included in the proposed rule published on December 1, 1989 (54 FR 49763).

1. Amend § 170.20 to change the cost per professional staff-hour from \$86 per hour to \$92 per hour based on the FY 1990 budget. The \$92 per hour rate is a decrease from the proposed \$95 per hour. This decrease is a result of adjustments made by Congress to the FY 1990 budget. The method used for calculating the hourly rate is exactly the same as that used in the proposed rule. An analysis of the budget which generated this rate is provided in the Section-by-Section Analysis.

2. Establish in part 170 a fee ceiling of \$50,000 for topical report reviews and for the review of any amendments, revisions or supplements to topical reports.

3. Update the schedule of fees in § 170.31 for small radioisotope licenses based on the FY 1990 budget. Because the professional staff-hour rate has decreased from \$95 to \$92, based on the FY 1990 budget, all fees shown in the proposed rule for small radioisotope licenses have been reduced in this final rule to reflect the decrease.

4. Remove the \$150 application filing fees in § 170.31 for those applications where fees are assessed based on the full cost for the review.

5. Modify fee Category 3N with a provision added that licenses which authorize leak test services and/or calibration services only will be subject

to fee Category 3P. Change Category 10B in § 170.31 from full cost fees to flat fees.

6. Delete the exemption provision in § 170.11(a)(3), broaden the exemption in § 170.11(a)(4), and clarify the exemption in § 170.11(a)(5).

7. Establish a new exemption provision in § 170.11(a)(11) to provide that Indian tribes and Indian organizations that are federally recognized as eligible for services provided by the Secretary of the Interior because of their status as Indians will be exempt from payment of fees. The exemption is modified so that it does not cover licenses authorizing the distribution of products or the offering of consultant services.

8. Amend § 170.12 (d) and (e) and footnote 4 to § 170.21 to clarify that fees for a standard design certification, if not referenced, will be recovered within fifteen years from the date of certification or renewal of the certification.

9. Revise § 170.12(h) to request that bills in excess of \$5,000 be paid by electronic fund transfer.

The agency workpapers which support the final changes to 10 CFR part 170 are available in the Public Document Room, at 2120 L Street NW., Washington, DC, in the lower level of the Gelman Building.

IV. Section-by-Section Analysis

The following section-by-section analysis of those sections affected provides additional explanatory information. All references are to 10 CFR part 170, Code of Federal Regulations.

Section 170.3 Definitions.

This section is revised to remove the paragraph designations for the definitions, arrange the definitions in alphabetical order, and add definitions of "Indian organization" and "Indian tribe."

"Indian organization" means any commercial group, association, partnership, or corporation wholly owned or controlled by an Indian tribe. "Indian tribe" means any Indian tribe, band, nation, or other organized group or community of Indians recognized as eligible for the services provided to Indians by the Secretary of the Interior because of their status as Indians.

Section 170.11 Exemptions.

Paragraph (a)(3) is being removed in its entirety. Fees for any byproduct, source, or special nuclear materials licenses issued under 10 CFR parts 30, 40, 70, or 71 that are considered to be incidental to the operation of a nuclear

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reactor will be charged under the respective materials fee category rather than under the 10 CFR part 50 reactor fee category as has been past practice. Therefore, for special nuclear materials licenses or any other licenses which are required prior to operation of the reactor, e.g., startup sources, reactor fuel, or calibration or monitoring equipment, fees will be assessed under 10 CFR 170.31 rather than § 170.21. If an applicant possesses byproduct, source, or special nuclear material for decontamination, inspection, repair, modification, or testing of their reactor components, for which a license is required under the Commission's applicable materials regulations, fees will be assessed in accordance with 10 CFR 170.31.

Paragraph (a)(4) is changed to broaden the exemption for non-profit educational institutions to include certain activities (e.g., research) not covered by the current exemption. The Commission has received several exemption requests from colleges and universities for licensed activities not covered by the current exemption. Additionally, this change is in keeping with the concern of Congress regarding the impact of the current schedule on some entities and their limited ability to pass through the costs of these charges to the ultimate consumer. Although the legislative history for annual fees contained in part 171 of this chapter discusses the option of considering modifications to these fee schedules for hospitals, research and medical institutions and uranium producers, the Commission is continuing to limit this particular exemption to non-profit educational institutions.

The exemption has been clarified to indicate that it does not include power reactor licenses and materials licenses which authorize human use, commercial distribution, remunerated service to other persons, or activities performed under a Government contract. The Commission will continue to assess fees for these kinds of activities. For example, fees are charged for licenses which authorize use of strontium 90 eye applicators in the treatment of eye diseases and xenon 133 for blood flow pulmonary functions; distribution of *in vitro* kits and radiopharmaceuticals; service for a charge to other persons or licensees such as soil density measurements and installation, calibration, and leak testing of equipment containing radioactive material and use of licensed material for consulting services. On the other hand, if a non-profit educational institution provides these or similar services,

except human use, to other persons without charge, the exemption would still apply.

Paragraph (a)(5) is changed, for clarification, to include certificates of compliance and other approvals.

Paragraph (a)(11) is added to provide that Indian tribes and Indian organizations that are Federally recognized as eligible for services provided by the Secretary of the Interior because of their status as Indians will be exempt from license fees. Indian tribes are recognized as separate political entities similar to State governments. The Commission intends to exempt Indian tribes and wholly owned tribal commercial organizations conducting licensed activities on tribal lands from license fees in the same manner as it does States and governmental agencies. The exemption is modified, consistent with § 170.11 (a)(4) and (a)(9), so that the exemption does not cover licenses authorizing the distribution of products or the offering of consultant services.

Section 170.12 Payment of Fees

As indicated in the proposed rule, paragraphs (a), (b), (c), and (d) are revised to more clearly distinguish the fee payment requirements for materials licenses and approvals not subject to full cost from the requirements for other licensed activities that are subject to full cost. In addition, paragraphs (d) and (e) are being revised to change the 10 year period of cost recovery to a 15 year period to be consistent with § 52.55. This is consistent with the intent of the Commission as stated in the final 10 CFR part 52 rule (54 FR 15376) that an applicant for design certification does not have to pay an application fee, but the applicant will have to pay the full cost of the NRC review of the application, although not until the certification is referenced in an application for a construction permit or combined license or, failing that, not until the certification expires. Also paragraphs (e) and (f) are being revised to eliminate the \$150 application fee for those applications where fees are determined based on full cost.

Paragraph (h) is being revised to indicate that (1) payments may also be made by electronic fund transfer (EFT) and (2) that where specific instructions regarding payment are provided on the bills, payment should be made accordingly. It is the intent of the Commission to request payment by electronic fund transfer of those bills which are in excess of \$5,000. This change is being made to encourage timely receipts and deposits in

accordance with U.S. Department of the Treasury cash management initiatives.

Section 170.20 Average Cost Per Professional Staff-Hour

This section is modified to reflect an agency-wide professional staff-hour rate based on FY 1990 costs to the Agency. Accordingly, the professional staff rate for the NRC for FY 1990 for all fee categories that are based on full cost is \$92 per hour, or \$161.4 thousand per FTE (professional staff year). For FY 1990, the budgeted obligations by direct program are: (1) Salaries and Benefits, \$203.16 million; (2) Administrative Support, \$74.64 million; (3) Travel, \$12.27 million, and (4) Program Support, \$148.70 million. In FY 1990, 1,636 FTEs are considered to be in direct support of NRC programs applicable to fees (see Table I). Of the total 3,180 FTEs, 1,544 FTEs will be considered overhead (supervisory and support) or exempted (due to their program function). Of these 1,544 FTEs, a total of 286 FTEs and the resulting \$26.1 million in support are exempted from the fee base due to the nature of their functions (i.e., enforcement activities and other NRC functions currently exempted by Commission policy).

TABLE I.—ALLOCATION OF DIRECT FTEs BY OFFICE

Office	Number of direct FTEs ¹
NRR.....	1,007.5
Research.....	146.0
NMSS.....	317.3
AEOD.....	85.0
ASLAP/ASLBP.....	22.2
ACRS.....	25.0
OGC.....	33.0
Total direct FTE.....	1,636.0

¹ Regional employees are counted in the office of the program each supports.

In determining the cost for each direct labor FTE (an FTE whose position/function is such that it can be identified to a specific license or class of licenses) whose function, in the NRC's judgment, is necessary to the regulatory process, the following rationale is used:

1. All direct FTEs are identified by office.
2. NRC plans, budgets, and controls on the following four major categories (see Table II):
 - (a) Salaries and Benefits.
 - (b) Administrative Support.
 - (c) Travel.
 - (d) Program Support.
3. Program Support, the use of contract or other services for which the NRC

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pays for support from outside the Commission, is charged to various categories as used.

4. All other costs (i.e., Salaries and Benefits, Travel, and Administrative Support) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Using this method, which was described in the December 1, 1989, proposed rule (54 FR 49763) and the FY 1990 budget, and excluding budgeted Program Support obligations, the remaining \$263.97 million allocated uniformly to the direct FTEs (1,636) results in a calculation of \$161.4 thousand per FTE for FY 1990 (an hourly rate of \$92).

TABLE II.—FY 1990 BUDGET BY MAJOR CATEGORY
(Dollars in millions)

Salaries and benefits	\$203.16
Administrative support	74.64
Travel	12.27
Total nonprogram support obligations ..	290.07
Program support	148.70
Total budget	438.77

The Direct FTE Productive Hourly Rate (\$92/hour rounded down to the nearest whole dollar) is calculated by dividing the annual nonprogram support cost (\$290.07 million) less the amount applicable to exempted functions (\$26.1 million) by the product of the direct FTE (1,636 FTE) and the number of productive hours in one year (1,744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities."

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects and Inspections

Since the Commission decision to remove the fee ceiling for topical report reviews (53 FR 52633; December 29, 1988), and as discussed in the proposed rule published December 1, 1989, the number of topical reports submitted for review has significantly decreased. It appears that the principal reason for the reduction in topical reports being submitted is the uncertain and potentially unlimited fee for NRC review of these reports. This is counterproductive to the agency because, in many cases, the regulatory effort gains significant benefit in terms of (1) the resolution of safety significant problems, and (2) the staff time saved by

conducting a generic review of a topical item thereby saving extensive plant-by-plant review in the same or similar areas. Examples of beneficial topical initiatives are numerous. The recent B&W Owners Group decision to undertake a complete reassessment of all B&W reactor designs, thus eliminating a costly NRC review, saved time and produced a more complete technical review than could have been accomplished by NRC alone. Another example is the CE Owner's Group development of EP Guidelines for all of its units. This generic effort saves NRC costly review time assessing plant-by-plant guidelines. These are just two of many examples where the public interest is served by an industry undertaking to resolve an issue. The surfacing of safety significant items stemming from the review of topical reports and the subsequent resource savings to the NRC, as well as the overall high level of technical competence available from industry, justifies NRC encouragement of industry submittal of these reports.

In conclusion, a balance must be maintained between the need to encourage industry submittal of these reports and the need to assess fees for the costs of reviewing the reports. The current system of charging a fee with no ceiling for NRC review of these reports appears to have had an inhibiting effect on the industry. As a result, the Commission is amending 10 CFR 170.21, Category J, Special Projects, to provide that the maximum fee for review of a topical report shall not exceed \$50,000 and any amendments, revisions, or supplements to topical reports shall not exceed \$50,000. This figure represents an adjustment of a previous ceiling of \$20,000 to reflect the effects of inflation and is an amount which approximates the median of topical report fees over \$20,000 charged in 1989. The Commission, as a matter of policy, will exempt all costs exceeding \$50,000 for topical report reviews completed on or after January 30, 1989.

The professional hourly rate assessed for the services provided under the schedule is revised as shown in § 170.20. Footnote 2 of § 170.21 is revised to provide that the professional hours expended up to the effective date of this rule will be assessed at the professional rates established for the June 20, 1984, and January 30, 1989, rules, as appropriate. Any professional hours expended on or after the effective date of this rule will be assessed at the FY 1990 rates shown in this final rule. Footnote 4 of § 170.21 is revised to clarify that the period for payment of

fees for standard design certifications is extended from 10 to 15 years. Footnote 5 has been added to § 170.21 to indicate that \$50,000 is the maximum amount that may be assessed for each topical report or each amendment, revision and supplement to a topical report.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services

The licensing and inspection fees in this section are modified to reflect the FY 1990 budgeted costs and to more completely recover costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. It includes the addition of a category for decommissioning applications for byproduct material. The fees shown in this final rule will apply to those decommissioning applications that are currently pending NRC review as well as subsequently filed applications. Fee Category 13, establishing fees for spent fuel storage cask Certificates of Compliance and for inspections related to storage of spent fuel, remains a part of the final rule. (The proposed rule relating to spent fuel storage was published for comment on May 5, 1989 (54 FR 19379)). A final rule relating to the storage of spent fuel in NRC approved storage casks at power reactor sites is currently being processed for publication in the near future.

Fee categories 1A, 1B, 2A, 4A, 5B, 10A, 11, 12, 13, and 14 are revised to delete the \$150 initial application fee. Fees for these categories are based on the full cost (professional staff hours and any contractual services costs) to conduct the licensing review. Because licensees are billed for these costs and are required to pay invoices within a specified time, this will eliminate the administrative cost related to initiating, processing and tracking the \$150 payment for the licensee as well as the NRC.

Fee Category 3N is modified with a provision added that licenses which authorize leak test services and/or calibration services only will be subject to fee Category 3P.

Fee Category 10B is changed from full-cost to flat fees. This change is based on an analysis of the actual staff-hours expended for the review and approval of the part 71 quality assurance programs.

Fee Category 12, Special Projects, is revised to provide that the maximum fee for review of a topical report and any amendments, revisions or supplements to topical reports shall not exceed \$50,000. This is consistent with the change made to § 170.21, Category J.

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V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for this final rule.

VI. Paperwork Reduction Act Statement

This rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VII. Regulatory Analysis

This rule was developed pursuant to Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. These guidelines took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 336 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the Independent Offices Appropriation Act of 1952 was further clarified on December 16, 1976, by four decisions of the Court of Appeals for the District of Columbia. *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, when the U.S. Court of Appeals for the Fifth Circuit held in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (1979, cert. denied 44 U.S. 1102 (1980)), that (1) the Nuclear Regulatory Commission had the authority to recover the full cost of providing services to identifiable beneficiaries; (2) the NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure

a licensee's compliance with the Atomic Energy Act and with applicable regulations; (3) the NRC could charge for costs incurred in conducting environmental reviews required by NEPA; (4) the NRC properly included in the fee schedule the costs of uncontested hearings and of administrative and technical support services; (5) the NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and (6) the NRC's fees were not arbitrary or capricious.

The NRC does not believe that the increase in fees that would result from the adoption of this rule would result in significant economic impact on most materials licensees. The increase in the annual cost that would be imposed on these licensees would not be significant in terms of their gross annual receipts. This rule revision will not have significant impact on state and local governments and geographical regions or on health, safety and the environment. The foregoing discussion constitutes the regulatory analysis for the final rule.

VIII. Regulatory Flexibility Certification

In the notice of proposed rulemaking published on December 1, 1989 (54 FR 49763), the Commission determined in its Regulatory Flexibility Certification that, based upon the available information, this rule was not expected to have a significant economic impact upon a substantial number of small entities as defined by the Small Business Act or the Small Business Administration regulations issued pursuant to the Act (13 CFR part 121). The Commission did, however, invite any licensee who considered itself to be a small entity to provide additional information by responding to four general questions on how the regulation could be modified to take into account the differing needs of small entities. In keeping with its normal practice, the Commission mailed the proposed rule document to each of its more than 8,000 licensees. Also, the Commission held public meetings in three regions to discuss the proposed rule.

The Commission received 29 comments on the proposed rule, representing less than one-half percent of all NRC licensees. Of the 29 comments, none mentioned the Regulatory Flexibility issue directly although several commenters expressed concern over the substantial increases in the fees assessed for specific categories of licenses.

A total of seven comments are believed to have come from small entities based upon a review of

information contained in their comments. Two of these comments were from hospitals, one from an industrial radiographer, one from a well logger, one from an engineering consultant, and two from other small research and development and manufacturing licensees. Although several of these commenters expressed concern over the percentage rate of increase in the fees which would be assessed for certain categories of licenses, these commenters neither indicated that the increased fees would significantly affect their ability to do business nor provided the NRC with the information needed for NRC to make that determination. The fees assessed by the NRC for each category of license are intended to reflect the level of effort required by the NRC to conduct the necessary licensing and inspection actions for that category. To this extent, the NRC has attempted to "tier" the costs imposed on its licensees to the level of effort that is required for the NRC to ensure that licensed activities are conducted in a manner that adequately protects public health and safety.

Based upon the number of comments received on the proposed rule and comments from attendees at the public meetings, as well as an analysis of these comments, the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. The increase in the annual cost imposed on most of these licensees is not significant in terms of their gross annual receipts. There is no annual recordkeeping burden imposed by the final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule, and therefore, that a backfit analysis is not required for it because these amendments do not require the modification of or addition to systems, structures, components or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects in 10 CFR Part 170

Byproduct material, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is proposing to adopt the following amendments to 10 CFR part

170.

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55 FR 23836
Published 6/12/90

10 CFR Part 170

RIN 3150-AD23

Revision of Fee Schedules: Radioisotope Licenses and Topical Reports

Correction

In rule document 90-11955 beginning on page 21173 in the issue of Wednesday, May 23, 1990, make the following corrections:

1. On page 21174, in the second column, in the first complete paragraph, in the fourth from last line, remove "the"

§ 170.12 [Corrected]

2. On page 21179, in the second column, in § 170.12(a), in the sixth line, between "be" and "charged" insert "processed and may be returned to the applicant. All application fees will be".

§ 170.21 [Corrected]

3. On page 21180, in the third column, in § 170.21, in the table, the heading "Family categories and types of fees" should read "Facility categories and types of fees".

4. On the same page, in the same column, in § 170.21, in the footnotes to the table, a line of five stars should appear between footnotes 2 and 4.

§ 170.31 [Corrected]

5. On page 21182, in the first column, in § 170.31, in the table, in the first line of entry N., "Licensee" should read "Licenses".

6. On page 21183, in the first column, in § 170.31, in the table, in the first line of entry 9B., "devices" was misspelled.

7. On the same page, in the third column, in § 170.31, in footnote (d) to the table, in the 14th line, immediately before "are due" insert "amendment fees".

55 FR 25774
Published 6/22/90

10 CFR Part 170

RIN 3150-AD23

Revision of Fee Schedules: Radioisotope Licenses and Topical Reports

Correction

In rule document 90-11955 beginning on page 21173 in the issue of Wednesday, May 23, 1990, make the following correction:

On page 21182, in the first column, in § 170.31, in the table, the first three lines of entry "N" should read as follows:

N. Licenses that authorize services for other licensees, except (1) licenses that authorize calibration ***.

Note: In the correction to this document published at 55 FR 23836, June 12, 1990, item five should be disregarded.

55 FR 29181
Published 7/18/90
Effective 8/17/90

*Storage of Spent Fuel in NRC-
Approved Storage Casks at Power
Reactor Sites*

See Part 72 Statements of Consideration

56 FR 31472
Published 7/10/91
Effective 8/9/91

10 CFR Parts 52, 71, 170, and 171

RIN: 3150-AD87

Revision of Fee Schedules; 100% Fee Recovery

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the regulations governing the licensing, inspection, and annual fees charged to its licensees. The amendments are necessary to implement Public Law 101-508, passed by the Congress on November 5, 1990, which mandates that the NRC recover approximately 100 percent of its budget authority (\$465 million) in Fiscal Year (FY) 1991, and the four succeeding years. This final rule affects all applicants, licensees, and holders of certificates of compliance, registrations of sealed sources and devices, approvals of quality assurance (QA) programs, and other approvals. The final rule increases fees substantially for those entities currently subject to fees. Other entities previously exempt from fees become subject to the fees in the final rule.

EFFECTIVE DATES: August 9, 1991.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-4301.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Analysis of Legislation.
- III. Responses to Comments.
- IV. Final Action—Changes Included in Final Rule.
- V. Section-by-Section Analysis.
- VI. Environmental Impact: Categorical Exclusion.
- VII. Paperwork Reduction Act Statement.
- VIII. Regulatory Analysis.
- IX. Regulatory Flexibility Analysis.
- X. Backfit Analysis.

I. Background

Currently, the Commission collects fees under 10 CFR parts 170 and 171. 10 CFR part 170, "Fees for Facilities and Materials Licenses and Other Regulatory Services" implements Title V of the Independent Offices

Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701). The license and inspection fees assessed under 10 CFR part 170 recover the costs to the NRC of providing individually identifiable services to specific applicants for, and holders of, NRC licenses and approvals. For example, fees are charged under 10 CFR part 170 for the NRC reviews of applications for new licenses, reviews of renewals and amendments to existing licenses, and inspections of applicants' and licensees' facilities. The fee schedules contained in 10 CFR part 170 were last revised on May 23, 1990 (55 FR 21173) (effective July 2, 1990). These fees were based on the FY 1990 budget.

10 CFR part 171, "Annual Fees for Power Reactor Operating Licenses", initially established in FY 1987, implements section 3201 of the Omnibus Budget Reconciliation Act of 1989 (Pub. L. 101-239) by charging an annual fee to NRC operating power reactor licensees (55 FR 7610; March 2, 1990). The annual fees recover NRC budgeted costs for generic regulatory activities relating to these licensees. The amount collected in FY 1990 from annual fees, when added to the amounts recovered under 10 CFR part 170 and the Nuclear Waste Fund (NWF), was approximately 45 percent of the NRC budget. For FY 1991, the previous Public Law required the Commission to recover \$157 million or 33 percent of its budget. On this basis, the NRC published the FY 1991 annual fees for operating power reactors based on 33 percent of the President's budget of \$475 million on August 17, 1990 (55 FR 33789).

The Omnibus Budget Reconciliation Act of 1990 (Pub. L. 101-508), signed into law on November 5, 1990, requires that the NRC recover 100 percent of its budget authority less the amount appropriated from the Department of Energy (DOE) administered NWF for FYs 1991 through 1995 by assessing license, inspection, and annual fees.

On April 12, 1991 (56 FR 14870-14896), the Commission published in the *Federal Register* a notice of proposed rulemaking that would amend the provisions of 10 CFR parts 170 and 171. This action was necessary for the Commission to comply with Public Law 101-508 and to more completely recover costs incurred by the Commission in providing services to identifiable recipients. The notice of proposed rulemaking invited interested persons to submit written comments for consideration in connection with the proposed amendments on or before May 13, 1991. In addition, the Commission's staff has been available to answer questions concerning the proposed rulemaking. As such, the NRC responded to numerous phone calls and held several meetings to respond to questions regarding the proposed fees. Summaries of these meetings have been placed in the Public Document Room. The Commission placed a copy of the workpapers relating to the proposed rule

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in its Public Document Room at 2120 L Street, NW., Washington, DC in the lower level of the Gelman Building. Workpapers relating to this final rule will also be placed in the Public Document Room.

II. Analysis of Legislation

Public Law 101-508, title VI, subtitle B, section 6101, states the new requirements for user fees and annual charges, which are summarized as follows in the Conference Report to the legislation, [101st Cong., 2d Sess., 136 Cong. Rec. H. 12692-93 (daily ed. October 26, 1990)]:

Subsection (a)(1) requires the NRC to collect fees and annual charges.

Subsection (a)(2) provides that the first assessment made under this authority shall be made no later than September 30, 1991.

Subsection (a)(3) provides that the last assessment of annual charges made under this authority shall be made no later than September 30, 1995.

Subsection (b) provides that the NRC shall continue to collect fees under the Independent Offices Appropriation Act of 1952 [31 U.S.C. 9701]. These fees are intended to recover the Commission's cost of providing any service or thing of value to a person regulated by the NRC.

Subsection (c) requires the NRC to collect, in addition to the Independent Offices Appropriation Act fees under subsection (b), an annual charge.

Subsection (c)(1) authorizes the NRC to impose an annual charge on any licensee of the NRC.

Subsection (c)(2) provides that the aggregate amount of annual charges shall, when added to the Independent Offices Appropriation Act fees collected under subsection (b), equal approximately 100 percent of the NRC's total budget authority for each fiscal year, less any amount appropriated to the NRC from the Nuclear Waste Fund.

Subsection (c)(3) directs the NRC to establish a schedule of annual charges that fairly and equitably allocates the aggregate amount of charges among licensees and, to the maximum extent practicable, reasonably reflects the cost of providing services to such licensees or classes of licensees. The schedule may assess different annual charges for different licensees or classes of licensees based on the allocation of the NRC's resources among licensees or classes of licensees, so that the licensees who require the greatest expenditures of the NRC's resources will pay the greatest annual charge.

Subsection (d) defines the Nuclear Waste Fund established by section 302(c) of the Nuclear Waste Policy Act of 1982, 42 U.S.C. 10222(c).

Subsection (e) amends section 7601 of the Consolidated Omnibus Reconciliation Act of 1985 (Public Law 99-272) to preserve existing authority for the NRC to collect user fees approximating 33 percent of the agency's budget. Following fiscal year 1995, annual charges will be assessed under section 7601

of the 1985 act instead of subsection (c) of the conference agreement.

In the Conference Report, the Congress suggested guidelines that NRC should follow in calculating the annual fee to be assessed. The conferees recognized in directing the Commission to collect the annual fees that, "Congress must indicate clearly its intention to delegate to the Executive the discretionary authority to recover administrative costs not inuring directly to the benefit of regulated parties" and that Congress must provide the agency "intelligible guidelines" for making these assessments. 136 Cong. Rec. at H12692, citing *Skinner v. Mid-America Pipeline Co.*, 109 S. Ct. 1726, 1734 (1989). The Conferees stated their belief that "the conference agreement meets these requirements." *Id.* at H12692. The specific guidelines are as follows:

First, the appropriations received by the NRC from the NWF established under section 302(c) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10222(c)) for licensing the DOE's nuclear waste management program are not to be recovered by the annual charges and should be subtracted from the amount of the budget authority.

Second, the amount recovered through annual charges is to be reduced further by the amount the NRC receives through fees assessed on licensees under the IOAA through part 170 of the Commission's regulations. The part 170 fees are intended to recover the costs to the NRC of providing individually identifiable services to applicants and holders of NRC licenses. Part 170 fees are not intended to recover the cost of generic activities that benefit licensees generally. The Committee expects the NRC to continue to assess fees under the IOAA so that each licensee or applicant pays the full cost to the NRC of all identifiable regulatory services the licensee or applicant receives.

Third, Public Law 101-508 provides, and the Conference Agreement reiterates, that the balance (after subtracting the amounts estimated to be received from the NWF and part 170) of the NRC's annual budget is to be recovered from the NRC's licensees through annual charges. The annual charge should be assessed under the principle that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual charges. The schedules of annual charges, which are to be established by rule, should "fairly and equitably" allocate the total amount of the charges to be recovered from the NRC's licensees and, to the "maximum extent practicable, the charges shall have a

reasonable relationship to the cost of providing regulatory services" to the licensees. 136 Cong. Rec. at H12692. The conferees recognized that a substantial portion of the NRC's annual expenses, while not attributable to individual licensees and thus not recoverable under the IOAA, are attributable to classes of licensees. Thus, the conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensee to that class. The conferees recognized that certain expenses cannot be attributed either to an individual or to classes of NRC licensees. The conferees intend that the NRC fairly and equitably recover these expenses from its licensees through the annual charge even though these expenses cannot be attributed to individual licensees or classes of licensees. These expenses may be recovered from those licensees whom the Commission, in its discretion, determines can fairly, equitably, and practically contribute to their payment. 136 Cong. Rec. at H12692, 3.

Fourth, the conferees note that the U.S. Court of Appeals for the District of Columbia Circuit, in affirming NRC's part 171 fee schedule, concluded that the agency "did not abuse its discretion by failing to impose the annual fee on all licensees," *Florida Power & Light Co. v. NRC*, 846 F.2d 765, 770 (D.C. Cir. 1988), *cert denied*, 109 S. Ct. 1952 (1989)).

Finally, the conferees noted that, under its existing rules, the NRC does not offset amounts paid by licensees as fines and penalties (including interest penalties) against the amount of annual charges to be collected. In addition, the NRC does not seek to recover through the annual charge amounts received from participants in the cooperative nuclear safety research program, the material and information access authorization programs (including criminal history checks under section 149 of the Atomic Energy Act of 1954, 42 U.S.C. 2169), or amounts received for services rendered to foreign governments and international organizations. "The conference agreement does not change these policies. Fines and penalties are assessed because of a failure of a licensee to comply with NRC standards and requirements. The purpose of the fine or penalty would be defeated if their assessment would result in a lowering of the offender's obligation to pay annual charges. Receipts from cooperative, international, and access authorization programs are collected from the entities benefitting from the particular program and are retained and used by the NRC for that program. Inclusion of the amount of these funds in

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the total amount recovered through the annual charge would result in double payment." 136 Cong. Rec. at H12693.

III. Responses to Comments

Three hundred thirty-four (334) public comments were received by the close of the comment period on May 13, 1991. The Commission has considered an additional 114 comments which were received by close of business on May 17, 1991, for a total of 448 public comments.

Of the 448 comments received, 413 were from persons concerned with other than power reactors (including States and local government agencies) and 35 were from utility licensees, and their representatives including owners groups concerned about fees for part 50 facilities. Thirteen letters were also received from other Federal agencies. Copies of all comment letters are available at the Public Document Room.

Many of the comment letters raised similar questions. These comments have been grouped, as appropriate, and addressed as single issues in this final rule. The comments have been grouped into three major areas—legal, policy, and specific fee issues.

A. Legal Issues

Several of the commenters raised questions concerning NRC's legal interpretation of the Public Law. These comments are addressed first because their resolution establishes the framework within which to address subsequent policy and specific fee issues raised by the comments.

1. Assessment and Collection of Annual Fees

Comment. Several commenters raised the question as to whether the Public Law requires the Commission to assess and collect fees by September 30, 1991, as indicated in the proposed rule, or to only assess fees by September 30, 1991, with licensees having the option of paying some of the revised fees after the end of FY 1991.

Commenters cite title VI, subtitle B, section 6101, subsection (a)(2), as providing that the first assessment of fees under subsection (b) and annual charges under subsection (c) shall be made not later than September 30, 1991. This provision, commenters argue, means that the NRC must determine the fee amounts and bill the licensees by September 30, 1991, but it does not mean that the fees must be collected by that date. The commenters indicate that collection by September 30 would not be possible if the Commission waited until that date to assess the charge, as the law would allow. Most commenters

indicated that the Commission should bill licensees for the revised annual fees by the end of FY 1991, but defer the collection of the fees for a reasonable amount of time. They argue further that the Energy and Water Development Appropriations Act of 1991, passed a week after the Omnibus Budget Reconciliation of 1990 (OBRA), indicates that revenues from licensing fees amounting to only \$153.5 million or 33% of the budget need be recovered (collected) by the NRC in FY 1991.

Response. The Commission believes that OBRA is the controlling legislation for recovery of 100 percent of the budget authority and believes that the correct interpretation of the law and the intent of Congress are that it directed the NRC to both assess and collect fees that approximate 100 percent of the budget authority for FY 1991–1995. Section (c)(2) of the law reads that "the aggregate amount of the annual charge collected (emphasis added) from all licensees shall equal an amount that approximates 100 percent of the budget authority of the Commission in the fiscal year in which such charge is collected * * *". Section (3) goes on to indicate that "the Commission shall establish by rule, a schedule of charges fairly and equitably allocating the aggregate amount of charges described in paragraph (2) among licensees." The Commission interprets this language as requiring in FY 1991:

- (1) The allocation of 100 percent of the NRC budget authority among licensees;
- (2) The establishment of the fees by rule; and
- (3) The collection of 100 percent of the budget authority.

However, even if it were not mandated to do so, the Commission believes as a matter of policy that it should collect FY 1991 annual charges by the end of FY 1991. A primary purpose of the 1990 OBRA legislation, of which the NRC user fee provision is a part, is to reduce the Federal budget deficit for FY 1991. This objective can only be achieved by the collection of fees and charges by the end of that fiscal year. Additionally, by requiring payments to be made this fiscal year, the Commission would be following both normal and prudent billing practice, as well as continuing its policy of previous years of requiring payment of part 171 annual charges by the end of the fiscal year in question.

The Commission recognizes that the timing of the FY 1991 annual fee bills is not ideal, but as noted, the NRC must collect the FY 1991 budget in FY 1991. To minimize the financial impact, however, the Commission has decided that the first quarter FY 1992 bills will not be due

until after the beginning of the second quarter of FY 1992.

2. Collect 100 Percent of Budget Authority

Comment. Several commenters indicated that the language in title VI, subtitle B, section 6101, subsection (c)(2) of the law which states that the "annual charge collected from all licensees shall equal an amount that approximates 100 percent of the budget authority" permits the Commission to explicitly exclude costs other than those recovered from the Nuclear Waste Fund from fee assessment.

Commenters from the power reactor industry questioned certain costs allocated to them based on Commission policy decisions. They indicated that some of these costs should not be charged and that the law, by its use of the words "approximately 100 percent" provides discretion for the Commission to exclude some costs from fee assessment (e.g., costs not attributable to a licensee, costs resulting from exempting nonprofit educational institutions, etc.).

Response. The Commission interprets the words "approximately 100 percent" as meaning that the Commission should promulgate a rule that identifies and allocates as close to 100 percent of its budget authority to the various classes of NRC licensees as is practical. This interpretation is supported by the Conference Report which states that "the conferees recognize that there are expenses that cannot be attributed either to an individual licensee or a class of licensees. The conferees intend the NRC to fairly and equitably recover these expenses from its licensees through the annual charge even though these expenses cannot be attributable to individual licensees or classes of licensees." Thus, the Commission concludes it was Congress' intent that the Commission allocate 100 percent of its budget authority for fee assessment, and that the term "approximately 100%" refers only to the inherent uncertainties in estimating and collecting the fees. These uncertainties may result in collecting less than the budgeted amount in which case NRC would not be required to collect additional fees; or collection of slightly more than the budget, in which case NRC would not be required to make refunds.

3. Assessment of Fees to All Classes of Licensees

Comment. Several commenters stated that the NRC is required to assess license fees and/or annual fees on all licensees where legally permissible in order to recover 100 percent of the

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budget authority. Commenters indicated that as a matter of consistency the NRC should recover its costs from any person or organization that receives NRC services and, therefore, there should be no exemption for nonprofit educational institutions, for example. In support of its argument, one commenter cites the statement in the Public Law that "any person who receives a service or thing of value from the Commission shall pay fees to cover the Commission's costs in providing any such service or thing of value." Others commented that the continued exemption for nonprofit educational institutions "violates the Congressional directive to recover costs of agency programs from those whom the programs benefit."

Response. The Commission concludes that it is not required to assess license fees and annual fees to all classes of licensees. For part 170 fees, for example, OMB Circular No. A-25, the implementing governmentwide policy guidance for the IOAA, indicates in item 5.(b).(3), that an agency may make exceptions to the general policy, and not assess fees for recipients engaged in a nonprofit activity designed for the public safety, health and welfare. Similarly, item 5.(b).(4), indicates that an exception may be made from the payment of the full fee by a State, local government or non-profit group when it would not be in the interest of the program.

For part 171 annual fees, the Public Law, in defining persons subject to the annual charges, states that "any licensee of the Commission *may* (emphasis added) be required to pay * * * an annual charge." Therefore, the Commission has discretion with regard to whom to assess license fees under part 170 and annual fees under part 171.

4. Annual Fees for Federal Agencies

Comment. Several Federal agencies licensed by the NRC commented that they should not be assessed annual fees under part 171 simply because they are NRC licensees. These agencies believe that to assess these fees violates the IOAA, and does not further the Congressional intent of NRC user fee legislation, which is to reduce the Federal budget deficit.

Response. In the supplementary information to the proposed rule, the Commission indicated that it is precluded under the IOAA from charging Federal agencies for "identifiable services rendered" under part 170. Public Law 101-508, the authority for the part 171 annual fees, is silent on the subject of charging Federal agencies. However, it does not bar such action, and allows collection of fees

from "any person" and "all licensees." Omnibus Budget Reconciliation Act of 1990, Public Law 101-508, section 6101, 104 Stat. 1388-298,299 (1990). The Public Law, in defining persons subject to the annual charge, states that "any licensee of the Commission may be required to pay * * * an annual charge." The Commission further notes that "persons" as defined in section 11s. of the Atomic Energy Act, includes Federal agencies (except for portions of the Department of Energy) and all licensees are "persons". Given this Congressional language, the Commission believes it legally permissible to consider Federal agencies with an NRC license as falling into the above categories, and is assessing them an annual fee accordingly.

5. Export Licensing Fees

Comment. A few commenters suggested that charging a fee for issuing export and import licenses, as proposed in Category K of § 170.21, and Category 15 of § 170.31, is a tax in violation of Article I, section 9 of the U.S. Constitution. The commenters also stated that according to an NRC publication, the reason for such licenses is to "enhance U.S. national security by preventing" nuclear proliferation. Therefore, because the service provides benefits for the U.S. Government and its citizens, it is improper to bill those seeking licenses.

Response. The Commission is following its mandate from Congress to charge based on "a reasonable relationship to the cost of * * * services * * *". The fees in question here are directly related to the cost of issuing export and import licenses, and therefore are not a tax or duty. The resulting charge therefore does not violate Article I, section 9 of the U.S. Constitution. Further, there is no compelling justification for not charging these entities fees.

As for the claimed improper purpose, the courts have held that the NRC may assess fees under part 170 for services that mutually benefit the recipient and the public. Prorating of costs on the basis of benefit to the public is not required. *Mississippi Power & Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (1979), cert. denied, 444 U.S. 1102 (1980).

One commenter claimed that no other U.S. agency charges for export licenses. This is incorrect. The Fish and Wildlife Service within the U.S. Department of the Interior charges a fee for wildlife export/import licenses. See 50 CFR 13.11(d) (1990).

6. Publish the Final Rule as an Immediately Effective Rule

Comment. Several commenters questioned the intent of the NRC to publish the final rule as effective upon publication without the normal 30 day period between publication and effective date. Some commenters believed that the Commission must offer a period of time after publication of the final rule to allow licensees to drop out of the licensed activity and to terminate their licenses to avoid payment of the new fees. An immediately effective final rule would not provide such an opportunity.

Response. The Commission has adopted the recommendation of numerous commenters and will promulgate parts 170 and 171 with an effective date 30 days after publication of the rule in the **Federal Register**. However, in order to effectuate 100% recovery of its budget authority, the Commission will send out the part 171 bills upon publication of the rule in the **Federal Register**. The bills would become due and payable on the effective date of the rule. This approach is authorized by NRC's debt collection regulations in 10 CFR part 15. Licensees and holders of certificates, registrations, and approvals are expected to pay these bills promptly. In order to avoid interest payments and penalties the bill must be paid within 30 days from the effective date of the rule.

Licensees, and holders of certificates, registrations, and approvals who wish to apply to the Commission for an exemption from all or part of their Fiscal Year 1991 part 171 annual fees must ensure that exemption requests, submitted pursuant to § 171.11, are received by the Commission on or before the effective date of the rule. With respect to timely filed exemption requests before the effective date of the rule, the Commission will act on those requests and will inform the requestor whether the sums will still be due during the pendency of the review of the request. No such assurance can be provided for exemption requests filed after the effective date of rule. Exemption requests or any requests to clarify the bill will not, per se, extend the interest-free period for payment of a bill. As stated above, the bills are due and payable on the effective date of the rule. Therefore, only payment will ensure avoidance of interest, administrative, and penalty charges. If a partial or full exemption is granted, any overpayment will be refunded.

The Commission wishes to emphasize that licensees, and holders of certificates, registrations, and approvals

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who wish to relinquish their license(s), certificate(s), or registration(s) or obtain a Possession Only License (POL), and who are capable of permanently ceasing licensed activities entirely by September 30, 1991, must, within the 30-day period before the effective date of the rule, notify the Commission, in writing, in accordance with 10 CFR 30.36, 40.42, 50.82, and 70.38, as appropriate. Licensees and holders of certificates, registrations and approvals must promptly comply with the conditions for license termination in those regulations in order to be considered by the Commission for a waiver of the FY 1991 annual fee.

7. Publish Final Rule as an Interim Rule

Comment. A few commenters suggested that the Commission publish the final rule as an "interim" rule, and schedule a further rulemaking to address inequities revealed during implementation and to allow the NRC to seek clarification or modification of its authority from Congress, if necessary.

Response. The Commission does not see the utility of publishing the final rule as an "interim" rule. In any case, any future changes in the rule, whether or not called "interim" would have to be effected through notice and comment rulemaking. Further, regardless of how a rule is characterized, it is the Commission's practice to monitor the implementation of its rules, and to amend them as dictated by experience.

B. Major Policy Issues

The commenters raised three major policy issues related to the proposed fee rule. As with the legal issues, the resolution of these policy issues helped frame the resolution of subsequent specific fee issues.

1. Assessing Costs Not Attributable to an NRC Licensee

Comment. Many comments were received from utilities and their representatives indicating that the NRC has not followed Congress' mandate by allocating certain costs to power reactors that these licensees contend are not attributable to them (e.g., uranium enrichment, DOD/DOE projects, international programs, etc.). These costs, they point out, should either be assessed as broadly as practicable in order to minimize the burden of the costs on a licensee or class of licensee or should be treated as activities in the national interest (e.g., international programs) and not charged at all. They also suggested that some costs should be assessed to applicants for licenses (e.g., uranium enrichment generic costs).

Response. As stated in the discussion of the legal issues, the Commission must collect approximately 100 percent of its budget in fees, even though in some instances certain activities are not attributable to an existing NRC licensee. These latter costs must be assessed upon someone. It is clear that under the legislation the NRC is only permitted to assess these costs to NRC licensees. It may not assess annual fees upon license applicants. Therefore, NRC must assess these costs on its existing licensees. As explained in the proposed rule, the Commission believes that it is appropriate to assess these costs based on the Conference Report guidance that the costs be "recovered from such licensees as the Commission in its discretion determines can fairly, equitably and practicably contribute to their payment." The Commission has determined that operating power reactor licensees can more equitably and practicably pay these costs than other NRC licensees, particularly in view of the substantial new annual fees being assessed to other licensees. The overwhelming portion of the Commission's budget is devoted to the regulation of power reactors and, therefore, it is only just that these entities pay for all but a small portion of the Commission's budget. Therefore, the Commission is assessing the \$15.7 million in budgeted costs for activities not attributable to an existing NRC licensee or class of licensee to operating power reactors as indicated in the proposed rule.

2. Consideration of Non-Safety Impacts in Assessing Fees

Comment. Most of the commenters indicated that the proposed rule would result in some type of impact on the licensee. For example, most of the over 200 comments from medical licensees expressed the opinion that the proposed fees, particularly the annual fees, would be a "death warrant" to nuclear medicine departments, would adversely affect patients' medical costs, and would result in reduced health care. Many medical licensees commented that small health care facilities would have difficulty continuing to operate if the "exorbitant" annual fees are assessed, and that the increased fees seem contrary to the process of cost containment and regulatory constraint of compensation for medical care.

Approximately 100 comments were received from well loggers, radiographers, and gauge users indicating that the annual fees would create severe hardships for the companies, and would prohibit them from providing well logging,

radiography, or gauge services. Many of the commenters suggested they will either have to terminate their license or move to an Agreement State which does not charge fees as high as those of NRC. Other commenters argued that they are small businesses with a few employees operating in a recessionary economy and competing against worldwide operations and huge foreign-owned companies. Many point out it will be impossible for their companies to pass on the proposed fee increases to clients and remain competitive in a small and severely depressed market.

The uranium recovery licensees stated that the proposed fees would have a significant adverse economic impact and will only further weaken the already non-viable domestic uranium mining and milling industry. Another commenter stated that the annual fees will dictate abandonment and decommissioning of uranium mills.

Fuel facilities licensees noted that the proposed fees would reduce the ability of U.S. based nuclear companies to compete in the world market and increase the potential for loss of U.S. jobs and economic dislocation. One commenter noted that the annual fee could force it to cease U_F conversion activities which could result in impaired national security.

The transportation class of licensees indicated that if the fees forced termination of the licenses, or Certificates of Compliance, a limited number of casks would be available for transport of spent fuel in the event of a reactor shutdown as well as for DOE and defense contracts. They noted that this could adversely affect safety and national security. The transportation licensees also indicated that these fees could become a barrier to free trade and competition because smaller vendors, with limited resources, would not be able to maintain a competitive position. Another commenter noted that the fees are expected to become a significant constraint on the development of newer and safer transportation and spent fuel storage casks.

Power reactor licensees stated the fees would have major impacts on the economic health of the licensees and the nature of NRC/licensee interaction, possibly to the detriment of the public interest, if not public health and safety. Others noted that the fees could divert available funds from operations and maintenance resulting in deferring plant improvements. Nonpower reactor licensees noted that the imposition of the annual fee would likely cause the shutdown of some nonpower reactors.

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Response. These comments regarding impacts on the nuclear industry have been carefully considered. The Commission recognizes that there will be adverse impacts from implementing the legislation. However, to eliminate the adverse effects, the annual fees would have to be eliminated or reduced. Because the Public Law requires the NRC to assess and collect approximately 100 percent of its budget authority, a reduction in the fees assessed for one class of licensee would require a corresponding increase in the fees assessed for another class. Therefore, the impacts noted cannot be eliminated without creating adverse effects for other licensees. For this reason, consideration has been given only to the effects that NRC is required to consider by law (i.e., the Atomic Energy Act, the Energy Reorganization Act, and the Regulatory Flexibility Act).

With regard to the health and safety responsibility and national defense requirements of the Atomic Energy Act and the Energy Reorganization Act, there is insufficient evidence supporting the commenters' claims of significant adverse effects. Therefore, no modification to the fees is included as a result of unsupported claims of safety impacts. However, implementation of the rule will be monitored and action taken as necessary if there are clear health and safety problems that arise.

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) requires consideration of the effect of regulations on small entities. These considerations must be documented and made available to the public in a Regulatory Flexibility Analysis. This analysis is discussed in the next issue.

3. Regulatory Flexibility Analysis

The Regulatory Flexibility Act requires that, consistent with the objectives of the rule and applicable statutes, the NRC consider the impact on small entities. The applicable statute in this case, Public Law 101-508, has a mandate of recovering 100 percent of the NRC's budget authority through fees. The Conference Report accompanying the legislation indicates a goal of assessing costs attributable to a class of licensees to that class. The Regulatory Flexibility Act requires that the NRC consider alternatives to minimize the economic impact of its regulations on small entities. These two laws are inherently in conflict if taken literally, in that assessing costs attributable to the materials class of licensees to that class of licensees will cause a significant impact on a substantial number of small entities. However, as indicated in the

response to the legal questions, NRC must assess all of its costs, but has discretion with regard to which licensees shall be assessed and the amounts charged to and within each class of licensee. Similarly, the Commission is not required to eliminate or even reduce the impact on small business, but is required to evaluate these impacts and explain its decision.

The Regulatory Flexibility Analysis is included in this final rule as appendix A to this document. This analysis evaluates the impact on small entities and, based on the comments received, concludes that there will be a significant impact on a substantial number of small entities. Alternatives to minimize the impacts were also evaluated. Given the conflicting goals of Public Law 101-508 and the Regulatory Flexibility Act, the Commission has determined that the impact on small entities be reduced, not necessarily eliminated, by establishing a maximum annual fee of \$1,800 per fee category for small entities. For each category, a materials licensee would pay the annual fee (base annual fee plus the surcharge) or \$1,800, whichever is less. To pay a reduced fee, a licensee must certify, using NRC Form 526 which will be enclosed with the bill, that it meets NRC's size standards for a small entity. The size standards were defined in the *Federal Register* on December 9, 1985 (50 FR 50241). Licensees that do not meet these criteria for small entities would be assessed the full annual fees established for the various classes of licensees in the final rule. The cost that would not be collected from the small entities, approximately \$4.9 million, will be allocated as a surcharge to large entities licensed by the NRC as follows: \$4.3 million to power reactor licensees and \$.6 million to large entities licensed under the materials program. This allocation is based on the percent of the budget attributable to each class of licensees.

C. Specific Fee Issues—Part 170

1. Assessment of Fees to Nonprofit Educational Institutions

Comment. The Commission invited public comment on this issue. Many public comments were received on whether or not to continue the exemption from fees for nonprofit educational institutions. A large majority of the comments were received from nonprofit educational institutions supporting the continuation of the current exemption in § 170.11(a)(4). These commenters indicated that nonprofit educational institutions have limited abilities to recover the increased regulatory costs. They stated that the

exemption has benefitted the public over the years by facilitating academic research and educational use of licensed materials, work that both furthers understanding of important research questions and provides training in nuclear science. Others commented that nonprofit educational institutions are perhaps the least able to contribute to the payment of fees.

Comments were also received indicating that, as a matter of consistency, the NRC should recover its costs from any person or organization which receives NRC services, including nonprofit educational institutions. These commenters claimed that the Commission no longer has the discretion to exempt certain classes of licensees because the Public Law, citing IOAA, directs that "any person who receives a service or thing of value from the Commission shall pay fees to cover the Commission's costs in providing such service or thing of value." Commenters pointed out that, if such an exemption were authorized, it would be more fair and equitable to allocate the costs among all licensees, not just operating power reactors, because all licensees, as well as the NRC, benefit from the training provided by nonprofit educational institutions to future engineers and other professionals in nuclear related fields. Another commenter noted that while voluntary charitable contributions to educational institutions are desirable, involuntary charitable assessments to operating power reactors are inconsistent with Congressional directives. They also suggested that if the Commission exempts these institutions from fees, then it should remove their costs (\$2.2 million) from the license fee base and not recover them. Other commenters indicated that for equity and fairness, nonprofit educational institutions should be required to pay the same fees as those being imposed on similar facilities operated by a for-profit corporation or nonprofit organizations that are not educational.

Response. As discussed in the evaluation of legal issues, the Commission must assess these costs but can decide whether to assess them to nonprofit educational licensees or to other licensees. The Commission believes that educational research provides an important benefit to the nuclear industry and the public at large and should not be discouraged. These nonprofit institutions have a limited ability to pass these costs on to others. Because the public comments do not provide a persuasive reason to change the proposed rule, the Commission will

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continue the exemption in § 170.11(a)(4) for nonprofit educational institutions and allocate these costs to operating power reactors.

2. Assessment of Fees for Standardized Reactor Design Reviews

Comment. Although the Commission did not propose changing its current policy of deferring payment of fees associated with standardized reactor design reviews, the Commission requested public comments on this issue. Numerous comments were received. The vendors who submit the designs for NRC review, NUMARC, and utilities endorsing NUMARC's comments, support the present policy of deferring the costs until the design is referenced in a license application or, if not referenced, the total accrued costs would be paid in full within a maximum of 15 years. They commented that, given the commercial industry's commitment to public health and safety and the benefits to be realized by the use of the standardized designs, it is reasonable to defer the costs and allocate them to power reactors. They suggest, however, that the deferred costs be paid in future dollars in order that "benefits received at some future time from a reduced annual charge on power reactors are equivalent to the 1991 amount paid." Second, a separate mechanism was suggested in order to repay those licensees who pay the increased annual fees now but may not benefit from a reduced annual fee at a later time because they are no longer subject to the annual fee. In addition, they suggest that those foreign companies seeking approval or certification of designs should be charged for the review costs as the costs are incurred by the Commission.

Other utilities and their representatives, on the other hand, objected to the current cost deferral policy as being neither fair nor equitable. These commenters indicated that such costs should not be recovered from power reactors, but from the vendors because these activities have no benefit to an already licensed plant. They argued that the Public Law does not grant the NRC the discretion to defer the costs. Therefore, since the costs are to be recovered these commenters stated that they should be charged as part 170 fees to the vendors seeking approval of the standardized designs. Others indicated that charging the costs to U.S. operating power reactors ignores the fact that the vendors will be marketing and selling the designs outside the U.S. They suggested that these other countries be solicited for a

portion of the funding. Although the U.S. nuclear power industry or individual utilities may choose to support the new designs, commenters indicate that the costs for the standardized design review should be charged directly to the individual nuclear steam supply vendors. One utility commented that because, to its knowledge, no new plants have been ordered or planned, collecting these costs from currently operating power reactors is not appropriate. Another utility indicated that licensees should not become "lending institutions for other organizations who receive immediate benefit." Other commenters indicated that there are no assurances that current operating reactors forced to bear the costs will still be licensed 15 years hence to receive the benefit of reduced costs at that time or that the vendors themselves will be in business or available to pay the fees in the future.

Response. Based on the comments received, the fact that NRC is not altering fees to reduce the impact for other larger entities, and the fact that applicants for standardized reactor design reviews are large companies capable of paying for the services rendered by the NRC, the Commission is changing the current policy of deferring the costs for standardized reactor design reviews. The Commission has decided that the cost of these reviews, whether from domestic or foreign applicants, should be assessed under part 170 to those filing an application with the NRC for approval or certification of a standardized design. Budgeted costs for advanced reactor research, review of Electric Power Research Institute (EPRI) advanced reactor criteria, generic rulemaking and guidance (e.g., 10 CFR part 52 and Regulatory Guides) for standard plants and contested hearings will continue to be included in the operating power reactor annual fee.

Review costs incurred under the present deferral policy, up to the effective date of this final rule will continue to be deferred. Because the rule will not become effective until late FY 1991, costs budgeted during FY 1991 will be assessed to operating power reactors in order to recover approximately 100 percent of the FY 1991 budget authority. Parts 52 and 170 have been modified in the final rule to reflect this change in fee policy.

3. Assessment of Fees Based on Hourly Rate

Comment. Commenters, while having no problem with the method of calculation of the hourly rate, questioned the inclusion or exclusion of some cost elements in the overhead as

part of the hourly rate. For example, commenters questioned the inclusion of Agreement State costs because the Agreement State program supports only materials licenses and the liaison activities with Agreement States provide no benefit to power reactors. Commenters indicated that ACRS costs relating to the review of advanced reactor designs, are also included in the overhead and should be assessed to vendors seeking review of an advanced design. Commenters stated that a unique hourly rate should be established for each class of licensee because not all overhead costs are applicable to each class of licensee. The commenters cite the ACRS cost as an example of cost included in the overhead that is not applicable to uranium producers and other non-reactor licensees. Utilities commented that it was unclear whether research grants to educational institutions and the Small Business Innovation Research Program (SBIR) should be included in overhead as opposed to charging these costs to operating reactors in the annual fee as in the proposed rule.

Response. The Commission has carefully considered the NRC costs classified as overhead and General and Administrative (G&A) and believes that the proposed allocations are appropriate from a practical point of view. Although any licensee may argue that there are isolated costs not applicable during a particular year, the Commission believes that when all costs are considered, the overhead and G&A cost allocation is appropriate and represents a practical and equitable way of allocating these costs to NRC licensees and applicants. With regard to the grants and SBIR programs, these programs are related to the NRC regulatory program with most of the activities being attributable to operating power reactors.

4. Assessing Fees to Agreement State Licensees Working in Non-Agreement States Under a Reciprocity General License

Comment. Many materials licensee commenters indicated that the annual fee for NRC materials licensees would result in an unfair advantage for their competitors who hold Agreement State licenses. The commenters pointed out that Agreement State licensees could operate in non-Agreement states without being assessed an annual fee by NRC. However, NRC licensees are charged a reciprocity fee by many Agreement States to operate in those states.

Response. Based on the comments received, the Commission has decided

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to assess fees to those Agreement State licensees working in States under NRC jurisdiction under the reciprocity provisions of § 150.20 for the services provided by the Commission. Specific services identified by the Commission which benefit the individual Agreement State licensees include review of their registrations required by the general license under Part 150 and inspection of the reciprocity activities. Accordingly, an application fee of \$600 will be assessed for each application filed for review in addition to the inspection fee originally proposed. It is noted that some Agreement States charge similar fees. Section 170.31 has been revised to add fee Category 16 to cover the reciprocity application fee. The application fee will be due at the time the applicant files Form 241 with the Commission and payment shall accompany the application. The inspection fee, which will be based on the appropriate fee category for the activities authorized, will be due upon notification by the Commission.

5. Fees for Topical Report Reviews

Comment. Several comments were received opposing the elimination of the ceiling for topical report reviews. The commenters indicated that, while the action is consistent with Congressional guidance that applicants pay for the services provided, deleting the ceiling will introduce an element of uncertainty and thereby tend to impede utilities working together to initiate activities with plant safety benefits. Commenters indicated that applicants should be provided with assurances of predictable schedules and with an estimate of the cost upon submittal of the topical report because the cost of an activity is a key element in determining whether a project is worthwhile. The commenters also noted that removal of the cap presents budgeting problems which may (1) affect their ability to address future generic issues and (2) result in a return to plant specific resolution of issues.

Response. The Commission has decided to eliminate the ceiling for topical report reviews, as proposed, based on the 100 percent recovery principle and Congressional guidance that each licensee or applicant pay the full costs of all identifiable regulatory services received from the NRC. Further, the NRC costs for topical report reviews vary significantly depending on the particular topical report reviewed and therefore make it impractical to establish an equitable ceiling or flat fee.

6. Fees for Export/Import Licenses

Comment. Two commenters strongly recommended that if export fees are to be charged, the NRC should establish a schedule of fixed fees for various types of materials and equipment exported from the United States. The commenters stressed that, in order to properly budget for the exports and to bill the customers in a timely fashion, a fixed fee would be more appropriate. The proposed fees were to be based on the actual staff hours expended on a particular application and billed after the issuance of the export licenses, which are mainly licenses of short duration (usually 6 months). Commenters pointed out that competitive bids have to be as precise as possible and a fee based on an estimate of staff hours to be expended leads to variation in the estimates and could result in loss of business in a highly competitive situation. One commenter indicated that the concern was not with the amount of the fees but their predictability and suggested that the NRC conservatively establish a fixed schedule of fees at a high enough level to ensure that all costs are recovered.

Response: The Commission agrees with the suggestion to establish a fixed fee schedule for export and import licenses and, after analyzing the available data, has determined that fair and equitable flat fees can be established. Therefore, the Commission has adopted a fixed schedule of export and import license fees based on the average costs for the review and approval of the various categories of export and import licenses. Fee categories K of § 170.21 and 15 of § 170.31 have been modified to include the revised application fees of \$920 to \$7,000 and amendment fees of \$580 to \$1,200 for export and import licenses.

7. Part 170 Flat Fees for Small Materials Licenses

Comment. One commenter was concerned about the Commission's use of flat fees in the materials licensing and inspection programs. The suggestion was made that the Commission establish a program for full and accurate accounting of actual manpower utilized to confirm that the fee basis is proper. The commenter suggests that if there is wide variance in the data for a given service, the NRC should consider abandoning the flat fee concept and going to full cost recovery based on actual manpower expended.

Response. The Commission has examined this method in the past and still believes that the administrative burden for such a system for its

approximately 9,000 licenses and registrations would be significantly greater than under the current system and would not justify the potential improvement in fee fairness and accuracy. Therefore, this suggestion has not been adopted.

D. Specific Fee Issues—Part 171

Most of the comments received expressed concern regarding the magnitude of the annual fees. These commenters also stated that the fee did not represent the cost attributable to their license or class of licensees. Many of these statements were assertions without supporting justification. These assertions were not evaluated further. However, the Commission has reevaluated its method for determining annual fees for each class of licensee and the allocation of budget costs of these licensees. In general, the Commission concludes that the method and allocation developed for and used in the proposed rule are fair, equitable and practicable. However, some changes have been made in response to public comments. Responses to specific comments on Part 171 annual fees are as follows:

1. Annual Fees for Shutdown Plants

Comment. Two commenters indicated that charging them the full annual power reactor fee is neither fair nor equitable because certain costs allocated to all power reactors are inapplicable to them because the plants are shutdown and they have filed requests for a possession only license (POL). To attempt to levy the full annual fee upon them would violate Congress' clear instructions that fees evidence a reasonable relationship to regulatory services provided to the recipient licensees.

Response. The proposed rule excluded power reactors with a POL from the fee base. In this final rule, the Commission has also excluded from the FY 1991 fee base the two cases referenced in the comments, Shoreham and Rancho Seco, as well as Ft. St. Vrain. Orders were issued by the Commission to these plants in 1990. The orders, as written, effectively shut down the plants with the same effect as a POL. Three Mile Island 2 (TMI-2) will continue to be exempted from the Part 171 annual fees. TMI-2 was notified by letter dated May 12, 1989, that because the reactor was in a shutdown and defueled mode, the Commission was granting an exemption from the annual fee for FY 1989 and thereafter until the utility was issued a POL. This final rule grants these reactor licensees full exemptions from the FY 1991 Part 171 annual fees.

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2. Partial Exemptions from the Annual Fee for the Small, Older Reactors

Comment. One commenter noted the Commission had, in the past, granted two partial exemptions from the annual fees for small, low power reactors. The low power units present a special problem, e.g., if the regulatory time and effort expended on small plants is less than the time and effort expended for large units, then a cost/megawatt ratio should be determined and all units charged accordingly. If the small units require essentially the same regulatory effort as the larger units, then other reactor customers and stockholders should not be expected to subsidize the operation of small units. On the other hand, the owners of the small reactors support the continuation of the exemption.

Response. Both Big Rock Point and Yankee Rowe have filed FY 1991 exemption requests as they have in the past. As in the past, the Commission, in this final rule, has granted Big Rock Point and Yankee Rowe a partial exemption from the annual fee. These partial exemptions are based on the exemption criteria as set forth in § 171.11. In addition, because of the older designs, many of NRC generic reactor activities are not applicable to these reactors. Thus, the NRC generic costs attributable to these reactors are less than those for other power reactors. Based on these considerations, the FY 1991 annual fee for Big Rock Point will be \$225,100 and the FY 1991 annual fee for Yankee Rowe will be \$507,900.

3. One Uniform Annual Fee for All Power Reactors

Comment. One commenter noted the differences in the proposed annual fees for operating power reactors compared to previous years and the fact that a specific reactor type in FY 1990 was the lowest charged of the four vendor groups and is now the highest in FY 1991. The commenter indicates that "the variability of the difference is greater than the attempted refinement." The commenter suggests that, because the differences are quite small compared to the proposed basic fee, the NRC dispense with the attempted refinement and charge one uniform amount for all part 50 power reactor licensees. This would have the benefit of improved predictability for ratemaking purposes.

Response. Although a uniform fee would be much simpler to calculate and would make the part 171 annual fee program much easier to administer, the Public Law indicates that the annual charge should be assessed "under the

principle that licensees who require the greatest expenditures of agency resources should pay the greatest annual fee." Further, this concept formed the basis for prior reactor annual fees. For FY 1991, the Commission intends to continue this concept because it does not believe it is appropriate to change the concept without opportunity for public comment. The question of whether a uniform annual fee that is fair and equitable can be developed and assessed to all operating power reactors might be reconsidered in any future part 171 rulemaking.

4. Annual Fee for Fuel Facilities

Comment. One commenter questioned the allocation of \$200,000 in budgeted safeguards costs to uranium hexafluoride converters (UF₆) as inappropriate. The commenter pointed out that the item relates to safeguards, licensing and monitoring pursuant to part 75 which relates to the control and accountability of special nuclear material. When the UF₆ leaves the plant, it is not enriched material. Therefore the safeguards costs should not apply. Another commenter noted that the regulation should be adjusted to provide that all part 70 high-enriched fuel fabrication license holders in the fuel facility class be assessed fees based upon their current status. One commenter believed that the two Combustion Engineering low-enriched facilities should be charged a single fee, as though they are one facility, because the two facilities represent one process. One commenter stated that the two UF₆ production facilities should have different fees because they require different amounts of safety attention. Another commenter indicated that it did not appear that the basis for allocating costs in the rule was followed and indicated that simply a uniform flat fee per facility constituted the most equitable method.

Response. The Commission has evaluated these comments and has made the following changes:

(1) Safeguards cost will not be assessed to UF₆ conversion facilities because, as the comments indicate, NRC safeguards regulations are not applicable to UF₆ conversion facilities.

(2) United Nuclear Corporation's Montville facility is included in the fee base as a high enriched uranium facility because the facility is currently operating and has an operating license similar to other high enriched uranium (HEU) fuel fabrication facilities that are being charged an annual fee.

(3) The same fee will be charged for each license in the same fuel facility categories (i.e., HEU, LEU, and UF₆)

because it is not practical to allocate cost on the basis of such factors as difference in processes and whether or not the facility has more safety problems than another facility at a specific point in time.

In addition to the above changes, the Commission has adjusted the fuel facilities annual fees to account for the costs recovered from 9 small fuel facilities which are charged \$100,000 per license. These adjustments will change the annual fees for HEU facilities from \$2.3 million to \$1.5 million; LEU facilities from \$0.3–1.3 million to \$0.7 million and UF₆ facilities from \$0.7 million to \$0.5 million.

5. Fees for Spent Fuel Storage

Comment. A commenter indicated that the NRC promoted the concept of part 72, subpart K licenses with the use of standard casks or facilities to reduce both utility and NRC costs. The commenter noted that the proposed annual fee could eliminate the economic feasibility associated with part 72 and seriously hurt development of on-site storage facilities. Other commenters indicated that because the Certificates of Compliance benefit the user (the part 72 general licensee) and not the certificate holder, the user should be assessed the annual fee. One commenter pointed out that a utility which seeks a part 72 license for an Independent Spent Fuel Storage Installation (ISFSI) and references an approved topical report for a storage system in its Safety Analysis Report (SAR) and application would be assessed an annual fee for its part 72 license, but the supplier of the storage system would not be assessed an annual fee for the topical report. One commenter stated that the annual fee would have the effect of discouraging efficiency and cost reduction that would benefit the NRC and the licensees generally, and could result in most of the current certificate holders dropping those certificates not currently in use or expected to be used within the next year.

One commenter noted that under the Nuclear Waste Policy Act (NWPA), utilities initiated construction of ISFSIs as interim facilities pending establishment of the Federally owned and operated waste repository. The commenters note that it is unreasonable to expect utilities to pay an annual fee for spent fuel storage since the Government (DOE) which accepts long-term responsibility for the spent fuel has not initiated the building of a storage facility but continues to require utilities to pay into the nuclear waste fund (NWF). The commenters recommended that for those utilities which are both

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paying into the NWF and paying the NRC spent fuel storage annual fee, DOE, rather than the utility, should be billed for the NRC annual fee.

Response. Based on these comments, the Commission believes that the proposed fee structure would result in unintended effects on the implementation of the recent amendments to 10 CFR part 72 adding subpart K (55 FR 29191; July 18, 1990). That is, instead of applying for a Certificate of Compliance, vendors would apply for a topical report approval in order to avoid the annual fee. This would result in shifting the fee to the specific ISFSI licensees. In addition, the Certificate of Compliance is similar to other approvals (e.g., approved topicals and approved standardized designs) where the users, not the holders of the approval, are assessed the annual fee. Therefore, the generic costs for independent spent fuel storage will be assessed in the annual fee for the licensees who have specific or general licenses to use the spent fuel storage casks. This would result in an increase in the annual fee for spent fuel storage licenses from \$187,500 to \$375,000 in FY 1991. The fee would be reduced in subsequent years since more facilities are expected to be licensed. The NRC is currently reviewing four specific license applications and one general license application for independent spent fuel storage. Fee Category 13 of § 171.16 has been modified to include annual fees for general licenses for storage of spent fuel under § 72.210 of part 72 of this chapter. With regard to charging the costs to DOE for payment from the NWF, the Commission has concluded that the costs are not covered by the NWF and therefore are not recoverable from the NWF.

6. Low Level Waste (LLW) Surcharge

Comment. Many medical licensees commented that the \$570 surcharge for LLW is inappropriate and should be removed from the rule for fee Category 7C. The licensees commenting on the proposed rule indicated that they hold the LLW for decay and it is disposed of either by incineration, release to regular trash, returned to the radiopharmacy or, in the case of generators, returned to the manufacturers. The licensees indicate that complete and comprehensive records are kept regarding the dates and methods of disposal.

Another commenter noted that while all three existing LLW disposal facility operators are licensed by Agreement States, they are also NRC licensees within the reach of NRC's authority

under section 6101(c) of the Omnibus Budget Reconciliation Act of 1990. At least two of the facility operators hold specific NRC licenses. All three hold NRC general licenses granted by 10 CFR 150.20, which are used in their interstate operations. The commenter also suggested that these facilities be charged more of the LLW costs.

Fuel facilities licensees indicated that the LLW surcharge should not be assessed equally to the facilities but assessed in proportion to the facility's licensed capacity or the amount of waste generated per facility. Uranium recovery licensees indicated that they do not generate LLW for disposal since their waste, primarily mill tailings, are disposed of on site. Thus they believe the LLW surcharge should not apply to them.

Response. The Commission agrees that (1) medical waste that is held for decay does not go to a licensed disposal site and should not be subject to the surcharge proposed in the rule and (2) uranium recovery licensees should not pay a LLW surcharge since their wastes are primarily disposed of on site. Therefore, fee Categories 2.A. (2) and 7C have been deleted from the categories assessed the surcharge for LLW in this final rule. These costs will be assessed to other material licensees that generate LLW for disposal, with a higher portion being allocated to licensees that dispose of special nuclear material waste. The Commission continues to believe that the \$1.9 million of LLW costs allocated to fuel facilities is appropriate and the surcharge should be the same for all large fuel facility licensees. The resulting LLW surcharge will be increased from \$570 in the proposed rule to \$1,400 for most materials licensees that generate LLW for disposal. The surcharge to the SNM waste disposal and small fuel facilities licensees will be \$35,800. The large fuel facilities will pay a surcharge of \$143,400.

7. Annual Fee for Depleted Uranium

Comment. A few commenters questioned the assessment of annual fees for depleted uranium used as shielding in sealed sources and devices. They pointed out that the depleted uranium is a line item on a broad scope license, requires no administrative costs on an ongoing basis and therefore, should be considered as part of the annual fee for a broad scope license.

Response. The Commission agrees. The shielding is often included in medical, radiography, and nuclear pharmacy licenses as part of the standard license authorization requiring little or no additional generic regulatory effort. Thus, it is not appropriate to

assess a separate annual fee for the depleted uranium in these instances. However, for those specific licenses which only authorize depleted uranium as shielding, e.g., shielding for a linear accelerator, an annual fee will be assessed. The appropriate fee categories in § 171.16 have been revised in the final rule to reflect this change.

8. Annual Fees for Transportation Certificate of Compliance Holders and Licensees

Comment. One commenter recommended that the NRC costs attributable to transportation licensees be distributed to all NRC licensees who are receiving the benefits from NRC services. To this end, the commenter recommended that both the Certificate of Compliance holders and all users of the transportation casks pay the annual fee. The suggested annual fee was \$1,000 for the certificate holders and \$500 for the users. Another alternative suggested by the commenters was to charge an annual fee to only registered users of transportation casks and not charge the certificate holder. The commenters noted that Canada charges the users and the costs can be readily absorbed by the utilities who are the principal transporters.

Response. The Commission has carefully considered these comments and will assess the users an annual fee for their quality assurance (QA) plan approvals. An annual fee will not be assessed to Certificate of Compliance holders. This is consistent with the approach taken for other holders of "standardized" approvals, e.g., topical reports, standardized reactor designs, and Certificates of Compliance for spent fuel storage. The annual fee for users will be \$1,700 per approved QA plan for use only and \$29,000 per approved QA plan for use and fabrication. To recover the NRC costs attributable to all of DOE's transportation casks, an annual fee of \$1.2 million will be assessed to DOE.

9. Annual Fees for Uranium Recovery Facilities

Comment. Some commenters recommended that the NRC exempt from fees ion-exchange plants and mills that are on a standby basis, in limited production, or have their reclamation plans under review by the NRC. One commenter suggested that the NRC costs attributable to uranium recovery facilities be assessed to foreign sources that deliver uranium to domestic energy plants and another commenter suggested that those costs be allocated to operating power reactors. Another commenter stated that there are many

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licensees that have no intention of operating again but, through no fault of their own, have not had their reclamation plans approved. They noted that delays in approval of these plans are not the fault of the licensee, but, for the most part, are attributable to the NRC. The commenter believed these uranium recovery licensees should not pay the annual fee, and suggested that the annual fee be waived as soon as it became clear that a licensee would no longer operate its facilities and had filed a request for final reclamation plan approval. They also stated that it was inequitable and counter-productive to charge an annual fee to non-operating licensees that intend to commence reclamation. Another commenter noted that it had an approved decommissioning/reclamation plan and is in the final stages of reclamation and should not pay an annual fee since the NRC research and special projects provide no benefit to the licensee.

Response. The Commission will recover the NRC costs attributable to uranium recovery from mills and ion-exchange plants in operation, or standby, or with reclamation plans under review. The Commission believes this is a practical, equitable, and fair way to recover the NRC costs, given the limited number of operating mills and is consistent with the approach taken for other classes of licensees. However, the Commission will not assess annual fees to mills that are undergoing decommissioning and reclamation because they are similar to reactors with a POL. The Commission has reviewed all uranium recovery facilities against these criteria. On the basis of the review, the Commission determined that there are 20 uranium facilities that should be assessed an annual fee. This compares to 30 in the proposed rule. This reduction in the number of facilities causes an increase in the annual fee from \$51,000-77,000 and \$67,000-\$100,000, depending on the type of license.

10. Review of DOE Activities

Comment. A few commenters questioned why the Department of Energy (DOE) was not being charged an annual fee with respect to the general licenses referred to in 10 CFR 40.27 and 40.28.

Response. 10 CFR 40.27 and 40.28 are general licenses issued in the NRC regulations that fulfill a requirement of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (Pub. L. 95-604) that the perpetual custodian of reclaimed uranium mill tailings piles be licensed by the NRC. The general

licenses in the regulation cover only post-reclamation closure custody and site surveillance. All substantive NRC review, both site specific and generic, is essentially completed prior to the application for the general license. Because none of the inactive sites have entered the post-closure stage, DOE is not yet an NRC licensee and therefore cannot be billed under part 171. When post-closure is achieved and these sites are licensed to the Government, the Commission will reconsider the assessment of NRC costs associated with the UMTRCA.

E. Other Comments

Some commenters contended that because the NRC would be required to collect 100 percent of its budget authority and licensees would be paying for the entire budget, a mechanism should be created, either through the establishment of a separate office or an advisory committee, to (1) assess the cost-effectiveness of proposed generic programs and to eliminate potential duplication of industry sponsored programs; (2) review agency cost trends and accounting practices; and (3) develop and propose future revisions to the fee regulations. The office or committee should include industry representatives and would have the right of public review and audit.

Commenters are concerned that the NRC, in collecting 100 percent of its budget, has been freed from meaningful accountability and lacks mechanisms to adequately monitor its own expenditures. Commenters indicated that more information must be made available to the public in order for licensees to understand the basis for the budget and its allocation for fee purposes. They pointed out that the public has no access to or understanding of the mechanisms used by NRC for tracking expenditures or for allocation of the charges to specific licensees or classes of licensees. They suggested that a process be established for public review of allocations for part 170 fees and the annual charges under part 171 and for refunding or crediting fees that are improperly allocated. Another commenter indicated that the relationship between the NRC and the licensee becomes one of NRC being a service organization with the licensee as the customer with little control over services rendered. This, they said, was not consistent with the charter of a regulatory agency.

Response. The requirement for NRC to recover 100 percent of its budget through fees does not exempt the NRC from the normal Government budget review and decisionmaking process. The NRC must

first submit its budget to the Office of Management and Budget. The NRC budget is then sent to the Congress for review and approval. The budget process, along with the internal NRC review process, helps ensure that the NRC budget is the minimum necessary to carry out an effective regulatory program. As in the past, the NRC will continue to base its fees on budget authority and provide the public with detailed supporting information concerning the bases for its fees. This information will continue to be available at the activity level, the lowest level for budgeting purposes. However, the Government is not subject to audit by outside parties. Audits are performed by the General Accounting Office or the agency's Inspector General, as appropriate. Therefore, these suggestions have not been adopted.

IV. Final Action—Changes Included In the Final Rule

The actions taken by the Commission in the final rule are as follows and permit the NRC to recover approximately 100 percent of its budget authority for FY 1991. Most of these changes were set forth in the proposed rule published on April 12, 1991 (56 FR 14870). Differences between the final rule and the proposed rule were explained in section III, Responses to Comments, and are noted in the following discussion.

Public Law 101-508 requires that the NRC recover 100 percent of its budget authority, including the funding of its Office of the Inspector General, less the appropriations received from the NWF for FYs 1991 through 1995 by assessing license and annual fees. The fees for FY 1991 must be collected by September 30, 1991.

The Commission has followed the guidelines in section II, as established by the Congress, in determining the fees to be assessed to comply with the Public Law. The following description explains the approach taken by the Commission to determine the amounts of the part 170 licensing and inspection fees and the part 171 annual fees to be assessed. Because the NRC must now recover 100 percent of its budget authority rather than 33 or 45 percent as in the past, the approach for updating the fee schedules necessarily varies from the approach taken in the past. The approach taken must ensure that all budgeted costs are now covered by fees. To ensure that all budgeted costs are covered, the NRC has taken the following actions.

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A. Appropriations from the Nuclear Waste Fund

During FY 1990, the Congress made provisions that the amounts budgeted for high-level waste (HLW) costs were to be directly appropriated to the NRC from the NWF. Appropriations received by the NRC from the NWF are not to be recovered by the annual charges. For FY 1991, \$19.7 million has been appropriated from the NWF and has been excluded from the budget authority of \$465 million. Therefore, NRC must collect approximately \$445.3 million in FY 1991 through part 170 licensing and inspection fees and part 171 annual fees.

B. Amendments to 10 CFR Part 170: Fees for Facilities and Materials Licenses and Other Regulatory Services; 10 CFR Part 71: Packaging and Transportation of Radioactive Material; and 10 CFR Part 52: Early Site Permits; Standard Design Certification and Combined Licenses for Nuclear Power Reactors

Seven amendments have been made to part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. These revisions also comply with the guidance in the Conference Report that fees assessed under IOAA recover the full cost to the NRC of all identifiable regulatory services each applicant or licensee receives.

First, NRC is amending 10 CFR parts 52 and 170 to assess licensing fees for the review of standardized reactor designs. This change is being made based on evaluation of the public comments received on the proposed rule (see section III to this final rule).

Second, NRC is amending the agency-wide professional hourly rate, which is used to determine the part 170 fees, to include all NRC budgeted overhead and general and administrative (G&A) costs. The hourly rate is increased by adding the overhead and G&A budgeted costs for the following organizations: Commissioners, Secretary, General Counsel, Government and Public Affairs (except for international safety and safeguards programs), Inspector General, Enforcement, Investigations, Small and Disadvantaged Business Utilization and Civil Rights, the Technical Training Center, Advisory Committee on Nuclear Waste, Advisory Committee on Reactor Safeguards, Atomic Safety and Licensing Appeal Panel, and Atomic Safety and Licensing Board Panel. Most of these overhead and G&A organizations were previously excluded by the Commission from fee

recovery (42 FR 22149; May 2, 1977). They have now been included because the Commission must recover 100 percent of its budget authority. As a result of including the additional organizations, the professional hourly rate in § 170.20 is increased by 25 percent (from \$92 to \$115 per professional staff hour). The NRC has increased the current part 170 licensing and inspection fees for all applicants and licensees to reflect this increased hourly rate.

Third, the NRC is amending 10 CFR parts 71 and 170 to recover costs expended by the NRC in conducting inspections related to casks, packages, shipping containers, and part 71 vendor QA programs and inspections conducted of manufacturers and initial distributors of sealed sources and devices. The NRC has completed Phase One of the transportation package-supplier inspection program. During this pilot program, six package-supplier (vendor) inspections were conducted. The inspections focused on implementation of procedures and approved QA programs. Inspection fees were not assessed for the six inspections conducted in Phase One because these inspections were pilot inspections designed to determine the need for safety inspections in the package-supplier industry. On the basis of the results of Phase One, the NRC plans to continue the program. Therefore, consistent with NRC policy of charging for health and safety inspections, this final rule would recover the full cost of routine and nonroutine inspections through fees. Routine inspections are estimated to range in cost from \$6,000 to \$22,000. Fees associated with the review of casks, packages, shipping containers, and vendor QA programs are currently assessed under § 170.31, fee categories 10A and 10B. A similar pilot program has been conducted for inspections of manufacturers and initial distributors of sealed sources or devices containing a sealed source. The NRC plans to continue this program as well.

Therefore, the final rule would recover the costs of conducting routine and nonroutine inspections through fees. Fees associated with the review of sealed sources and devices are currently assessed under § 170.31, fee categories 9A through 9D. Note that similar inspection fees were established by the NRC, effective August 17, 1990, for activities relating to Certificates of Compliance for spent fuel storage casks and for inspections related to the storage of spent fuel (55 FR 29181; July 18, 1990).

Fourth, the NRC is charging both (1) licensing fees for review of the registrations (Form 241) filed with the NRC by Agreement State licensees who seek permission to perform work in non-Agreement states under the reciprocity provisions of 10 CFR 150.20 and (2) inspection fees for those inspections conducted by the NRC of Agreement State licensees. Under 10 CFR 150.20, any person holding a specific license from an Agreement State authorizing use at temporary job sites is granted a general license to conduct the same activity in non-Agreement States for a period not to exceed 180 days per calendar year. The NRC reviews Form 241 filed with the NRC to conduct activities in non-Agreement States and conducts periodic inspections of activities performed under the reciprocity provisions. The NRC has established an application fee of \$600 for the registration review and will assess the inspection fees shown in the specific categories of 10 CFR 170.31 to those Agreement State licensees that are inspected by the Commission. For example, an Agreement State licensee performing radiography work in a non-Agreement State and inspected by the Commission would pay the applicable routine inspection fee of \$1,200 in fee Category 3.0. Similar fees are assessed by some Agreement States to NRC licensees who perform work in Agreement States under the reciprocity provisions.

Fifth, the NRC is amending § 170.2, Scope, to broaden and to clarify the Commission's intent to more fully collect fees for identifiable services. For example, fees based on the full-cost recovery method will be assessed for preapplication license reviews for potential construction permit and operating license (CP/OL) applicants for reactors, fuel facilities low-level waste (LLW) disposal, and standardized reactor designs, even though an application may never be filed.

Sixth, the NRC is eliminating the ceiling of \$50,000 on part 170 fees for reactor and material topical report reviews and amendments to topical reports and full costs will be recovered for these services. In the past, the Commission had decided to retain a ceiling on fees for the review of topical reports to encourage submission of these reports (55 FR 21173; May 23, 1990). However, the Commission may legally charge the full cost of processing an application for which the applicant receives a special benefit not available to the public at large. *Mississippi Power and Light Co. v. NRC*, 601 F.2d 223, 230 (5th Cir. 1979), cert. denied 444 U.S. 1102

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(1980); see also *Phillips Petroleum Co. v. FERC*, 786 F.2d 370, 376 (10th Cir. 1986) (upholding full cost fees, under IOAA, by FERC on licensees despite benefits to the general public). Therefore, following Congressional guidance that each licensee or applicant pay the full costs to NRC of all identifiable regulatory services received, the Commission has removed the \$50,000 ceiling.

Seventh, the NRC has changed its policy for exempting certain classes of licensees from fees by revoking the exemption provisions in § 170.11(a) (1), (2), (8), (9) and (11). Specifically, the Commission has established license fees for export and import license applications previously exempted from fees under § 170.11(a) (1) and (2). Fees are established in part 170 for the export or import licensing of a production or utilization facility, and for export or import licensing of byproduct material, source material, or special nuclear material, including heavy water, tritium and reactor grade graphite. Based on the public comments received (see section III of this final rule), the Commission has established flat fees for both export and import licenses. This is a change from the proposed rule, where the fees were to be based on recovering the professional staff hours and contractual services costs expended for the review. The flat export and import license fees would range from \$580 to \$7,000, depending on the type of material or equipment being exported or imported and the type of action (new license or amendment). Any review of a route approval required in conjunction with an import license will also be assessed fees under part 170.

Additionally, holders of licenses specifically authorizing depleted uranium as shielding only in devices and containers who were previously exempt from fees under § 170.11(a)(8) will be subject to the fees under fee category 2B of § 170.31 and § 171.16. Based on the comments received, the NRC will not assess an annual fee for the depleted uranium when it is part of a license authorizing other activities (e.g., medical or radiography license). The NRC will also assess fees to State and local governments and Indian Tribes and Indian organizations. These licensees were previously exempted from fees under § 170.11(a) (9) and (11). Under the final rule, these licensees will pay the licensing and inspection fees established in part 170 for the fee category(ies) applicable to the license. For example, a State agency that is authorized to possess and use a soil-density gauge containing radioactive material will pay the applicable fees for

fee category 3P. These licensees plus Government agencies with NRC licenses or certificates will also become subject to the new annual fees established in part 171 for nonpower reactor licensees and materials licensees. The Commission will maintain the current exemption from fees in § 170.11(a)(4) for nonprofit educational institutions and has added a similar provision in § 171.11.

The NRC estimates that approximately \$79.5 million will be recovered in FY 1991 from the fees assessed under 10 CFR part 170. The final amendments, including the revised hourly rate, will have minimal effect on FY 1991 collections because the final rule will not become effective until the last month or so of the fiscal year. The amount recovered is expected to increase by approximately 25 percent in FY 1992.

C. Amendments to 10 CFR part 171: Annual Fees for Power Reactor Operating Licenses

The NRC has amended this regulation, which currently establishes annual fees for operating power reactors only, to increase the annual fees for operating power reactors, and to add annual fees for nonpower (test and research) reactors, materials licensees including fuel fabrication facilities, uranium recovery facilities, transportation and cask users, other small materials licensees, and Government agencies who are licensed by the NRC. All annual fees in part 171 are based on the increased hourly rate.

1. Costs Attributable to Power Reactors

The NRC has made two changes to the operating power reactor annual fee currently being assessed.

First, part 171 has been expanded to include additional regulatory costs that are attributable to power reactors other than those costs that have previously been included in the annual fee for operating power reactors. These additional costs include the costs of generic activities that provide a potential future benefit to utilities currently operating power reactors. These generic activities are associated with reactor decommissioning, license renewal, standardization, and construction permit (CP) and operating license (OL) reviews. Also included are NRC generic costs that are primarily related to power reactor licensees, but that support other NRC applicants and licensees (e.g., costs to update 10 CFR part 20 of the Commission's regulations and to operate the Incident Response Center) because the NRC would incur these costs in about the same amount to

regulate power reactors even if they did not support other applicants and licensees.

Second, the NRC has included in the annual fee for operating power reactors those activities related to specific power reactors that are not billed under part 170 (e.g., NRC staff participation in contested hearings, responses to Congressional inquiries regarding specific reactors, orders issued pursuant to 10 CFR 2.204 and amendments resulting specifically from these orders, responses to 10 CFR 2.206 petitions, and responses to reactor allegations). Because the Commission is adhering to its previous policy decisions that these types of activities not be included in part 170 (42 FR 22159; May 2, 1977 and 49 FR 21297, 21300; May 21, 1984), the costs of these activities are recovered through the annual charge under part 171.

In part 171, the Commission has continued to identify and has determined power reactor annual fees that are based on the type of reactor (PWR, BWR), the reactor vendor (e.g., General Electric, Westinghouse), and the location of the reactor (seismic review costs may vary from region to region). The Commission will continue to consider requests for exemption from the full reactor annual fee for the smaller, older power reactors (e.g., Big Rock Point, and Yankee Rowe). Both Big Rock Point and Yankee Rowe have filed FY 1991 exemption requests in accordance with the criteria in § 171.11. The Commission has granted partial exemptions from the annual fees to both reactors for FY 1991. The reactors have been removed from the fee base in determining the calculation of the annual fees for the other operating power reactors. However, the Commission reemphasizes its intent to grant exemptions sparingly (51 FR 33227; September 18, 1986). Therefore, the Commission strongly discourages licensees from filing exemption requests. As the Commission has indicated previously, if a power reactor licensee has only the authority to possess nuclear material and the Commission has received a request from the licensee to amend its license to permanently withdraw its authority to operate the reactor or the Commission has permanently revoked such authority, the licensee is not subject to the annual fee under this part for that power reactor (51 FR 33228; September 18, 1986). Consistent with this policy, the Commission has granted an exemption from the FY 1991 annual fees for Ft. St. Vrain, Rancho Seco, Shoreham and TMI-2 because of the orders that were issued by the Commission to these

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plants in 1990. The orders, as written, effectively shut down these plants with the same effect as a possession only license.

Considering the above modifications, budgeted costs of approximately \$290.9 million have been identified as being attributable to the operating power reactor class of licensees. Thus, by modifying part 171, the base annual fee for an operating power reactor is increased from approximately \$1 million to approximately \$2.7 million.

2. Costs Attributable to Other than Power Reactors

Pursuant to Public Law 101-508, the NRC has amended part 171 to establish and assess annual fees for costs applicable to nonpower reactors, and materials licensees. Materials licensees include fuel fabrication facilities, spent fuel storage casks and facilities, uranium recovery facilities, and those who hold transportation Certificates of Compliance, approvals of QA programs, sealed source and device registrations, and other small materials licensees. Government agencies licensed by the NRC will also be charged an annual fee based on the type of license or certificate they possess. Consistent with the guidance in the Conference Report, annual fees will be assessed for NRC generic regulatory costs and other costs not recovered under part 170 but attributable to these licensees and holders of certificates, registrations and approvals. The NRC costs are associated with generic activities (e.g., rulemaking, upgrading safeguards requirements, modifying the Standard Review Plans, overseeing regional programs, and developing inspection programs) and other activities not billed under part 170 (e.g., event and allegation followup, contested hearings and responses to § 2.206 petitions) that are required to regulate these licensees and certificate holders. The following discussion explains the assessment of the annual fees for nonpower reactors and the various classes of fuel cycle and materials licensees.

Nonpower Reactors. All test and research reactors, except those operated by nonprofit educational institutions, are included in this class. This would include those reactors operated by the Federal government. Budgeted costs of approximately \$500,000 have been identified as being attributable to licensees who are not nonprofit educational and are licensed to operate test and research reactors. An annual fee of \$50,000 will be assessed for each test and research reactor.

Major Fuel Facilities. The licensees in this class are predominantly persons with licenses authorizing them to possess and use significant quantities of special nuclear material in fuel processing and fabrication or significant quantities of source material in the conversion of uranium hexafluoride (UF₆). Twenty facilities have been identified and included in this class of licensees: six manufacturers of low-enriched fuel, three manufacturers of high-enriched fuel, two who operate UF₆ conversion facilities and nine other facilities that possess and use special nuclear materials. The NRC budgeted costs attributable to these fuel facilities are approximately \$10.6 million. The Commission has established and will assess an annual charge to these major fuel facilities to recover NRC generic budgeted costs that are attributable to these facilities. The annual fee per facility license would range between \$540,000 and \$1.5 million depending on the type of license (e.g., high enriched uranium, low enriched uranium, and UF₆ conversion). The other small facilities will be assessed an annual fee of \$100,000 per license.

Storage of Spent Fuel. The licensees in this class are holders of licenses, including a general license, to receive and store spent fuel at an ISFSI. The NRC costs attributable to these licensees are \$1.5 million. The annual fee is \$375,000 per license. The NRC will not assess an annual fee for spent fuel storage Certificates of Compliance.

Uranium Recovery Operations. Licensees that are subject to annual fees in this class includes mills, in-situ leaching facilities, heap leaching facilities, ore buying stations, ion-exchange facilities, and metal extraction facilities. The NRC budgeted generic costs for these types of licensees are \$1.9 million, resulting in an annual fee for these facilities ranging from \$67,000 to \$100,000, depending on the type of license (e.g., mills, in-situ leaching, and heap leaching). The NRC will not assess an annual fee to uranium mills with approved reclamation plans or the low level waste surcharge to uranium recovery facilities since their waste is disposed of on site.

Transportation of Radioactive Material. Holders of approvals for QA programs and the Department of Energy are included in this class and are subject to an annual fee. The NRC budgeted costs attributable to transportation of radioactive material are \$4.8 million. \$1.2 million will be assessed to the Department of Energy for NRC activities associated with all of their transportation casks. The remaining

costs are allocated to holders of QA plan approvals. The annual fee for approved QA plans is \$29,000 for users and fabricators and \$1,700 for users only. The NRC will not assess an annual fee for transportation cask Certificate of Compliance holders.

Materials Licensees. Licensees in this class would include but not be limited to doctors, hospitals, radiographers, well loggers, gauge users, sealed source and device registrants, and nuclear laundries, all of which are currently assessed fees under part 170. In order to recover the \$27.2 million in budgeted NRC costs attributable to this class of licensees, annual fees have been established for materials licensees. The annual fees for most of these licensees are expected to range from \$290 to \$10,700, depending on the type of license held. The annual fee for a military "master" broad-scope license is \$200,000. The NRC will not assess the low level waste (LLW) surcharge to nuclear medical licensees, other than broad medical licensees, because most of their waste is held for decay and does not require disposal at licensed LLW disposal sites. Materials licensees may pay reduced annual fees if they (1) qualify as a small entity under the Commission's size standards (50 FR 50241; December 9, 1985) and (2) file a completed NRC Form 526 with the Commission certifying that they are a small entity. The Commission estimates that the reduced fee for small entities will result in \$22.3 million of the \$27.2 million being assessed as part of the base annual fee for material licensees.

Government agencies that hold an NRC license or certificate are subject to the annual fees. With respect to Government agencies that have NRC licenses, the Commission has followed the mandate of the IOAA that specifically indicates that fees should not be assessed to Federal agencies for identifiable services rendered. Public Law 101-508, which now requires that the NRC recover 100 percent of its budget authority, is silent with respect to recovery through annual fees of NRC costs that are attributable to other Government agencies. Because Public Law 101-508 does not contain a restriction on charging government agencies analogous to the IOAA, the NRC will recover its costs, under part 171, for those Government agencies that hold NRC licenses or certificates.

Under this final rule, Government agencies with NRC licenses will pay annual fees, but not licensing and inspection fees under part 170, that are the same as those paid by other NRC licensees. For example, Veterans

Administration (VA) hospitals, Army irradiators, and National Aeronautics and Space Administration (NASA) radiographers will be assessed an annual fee that is based on the fee category assigned the license. For instance, NASA would pay the annual fee assigned to fee Category 3.0. for a license authorizing radiography. In addition, a new annual fee category 17 has been established for those military "master" broad licenses that authorize multiple activities at multiple locations under the same license and a new annual fee category 18 has been established for Department of Energy Certificates of Compliance for transportation casks.

With respect to exemptions for materials licenses, the Commission plans to establish a very high threshold for eligibility for any requested exemption to the annual fees. The NRC will rarely grant an exemption because of the requirement by Congress that the NRC recover 100 percent of its budget authority through fees. Therefore, the NRC strongly discourages licensees from filing exemption requests. The Commission notes that the impact of the final rule on small entities has been evaluated in the Regulatory Flexibility Analysis (see Appendix A to this document). Based on this analysis, the Commission has reduced the annual fees for small entities.

Those materials licensees that hold a possession only license and who have permanently ceased operations will not be subject to the annual fees under this part for that materials license. Those licensees, who by the effective date of this rule, wish to relinquish their license(s) and who are capable of permanently ceasing licensed activities entirely by September 30, 1991, will not be required to pay the annual fee if within the 30 day period they so notify the Commission in writing according to the Commission's regulations in 10 CFR 30.36, 40.42, 50.82, and 70.38 and can promptly (before September 30, 1991) comply to the Commission's satisfaction with the conditions for license termination in those regulations. This will also apply to holders of Certificates of Compliance, quality assurance program approvals and holders of sealed source and device registrations who wish to relinquish their certificates, approvals or registrations before September 30, 1991, to avoid payment of the annual fee and who so notify the Commission in writing by the effective date of this final rule and comply, to the Commission's satisfaction, with all applicable regulatory requirements.

These amendments to part 171 do not change the underlying basis for part 171; that is, charging a class of licensees for NRC costs attributable to that class of licensees. The changes are consistent with the Congressional guidance in the Conference Report, which states that the "conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensee to such class" and the "conferees intend that the NRC assess the annual charge under the principle that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual fee." 136 Cong. Rec., at H12692-93.

3. Costs Remaining to be Recovered After Amendments Identified in Items 1 and 2 of this Section IV

After making the necessary amendments to 10 CFR parts 170 and 171, shown in items 1 and 2, approximately \$33.3 million remains to be collected in order to meet the 100 percent recovery requirements of the Public Law (See Table I).

TABLE I.—RECOVERY OF NRC'S FY 1991 BUDGET AUTHORITY

Proposed recovery method	Estimated amount (\$ in millions)
Nuclear Waste Fund	\$19.7
Part 170 (license and inspection fees)	179.5
Part 171 (annual fees)	
Power Reactors	290.9
Nonpower Reactors .....	.5
Fuel Facilities	10.6
Spent Fuel Storage	1.5
Uranium Recovery	1.9
Transportation	4.8
Material Users	22.3
Subtotal	332.5
Costs remaining to be recovered not identified in items 1 and 2 above	33.3
Total	465.0

¹ Amount of recovery is expected to increase by approximately 25% in FY 1992 after the final rule becomes effective. The amendments including the hourly rate will have minimal effect on FY 1991 collections because the final rule will not be effective until the last month or so of the fiscal year.

The budgeted costs of \$33.3 million that remain to be recovered are for the following activities:

- (a) Activities not attributable to an existing NRC licensee or class of licensees:
 - Reviews for Government agencies including the Department of Energy (DOE) activities that do not result in issuance of a license or certificate;
 - The Office of Governmental and Public Affairs (GPA) international cooperative safety program and GPA's and the Office of Nuclear

Material Safety and Safeguards' (NMSS) international safeguards activities;

- LLW disposal generic activities; and
- Uranium enrichment generic activities.

(b) Activities not assessed 10 CFR part 170 licensing and inspection fees or 10 CFR part 171 annual fees on the basis of existing Commission policy:

- Licensing, inspections, and other NRC activities for nonprofit educational institutions;
- Reduction in annual fees for small entities;
- Licensing reviews for export/import (FY 1991 only); and
- Licensing reviews of standard reactor design applications (FY 1991 only).

These activities have been examined and evaluated by the Commission to determine how their costs should be recovered, through annual fees, considering—

- The beneficiary of the NRC activities;
- The NRC licensee's ability to pay the fees; and
- The NRC administrative burden associated with determining and collecting the fees and the discretion afforded NRC by the courts and conferees not to assess the annual fees on all licensees.

To recover the budgeted costs of \$33.3 million for these activities, the Commission considered the following options:

- (1) Allocating costs to operating power reactor licensees only.
- (2) Allocating costs to all NRC licensees currently subject to the fee regulations (i.e., reactor, fuel cycle facility, and materials licensees).
- (3) Allocating costs to each individual licensee, classes of NRC licensees or persons that receive the NRC services, where legally feasible. (This option would have also required selection of Option 1 or 2 above to achieve 100 percent recovery.)

The Commission considered only those alternatives that would ensure that all NRC activities are covered by fees so that approximately 100 percent of the budget is recovered.

Alternatives that led to less than 100 percent collection of the budget in FY 1991 were not considered because, as Congress recognized, certain budgeted costs are not associated with an NRC licensee or class of licensees. Nonetheless, Congress required these costs to be collected.

Activities not attributable to an existing NRC licensee or class of licensees. This first major category of costs covers those NRC activities that are not attributable to an existing NRC

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licensee or to a class of licensees. This category includes the reviews of certain DOE activities and actions; GPA international cooperative safety program; NMSS and GPA international safeguards activities; the Office of Nuclear Regulatory Research's (RES) and NMSS generic low-level waste activities; and NMSS and RES generic uranium enrichment activities.

With regard to DOE, the Office of Nuclear Reactor Regulation (NRR) reviews DOD/DOE reactor projects and NMSS performs safety and environmental reviews of DOE activities and actions under the West Valley Demonstration Project Act and Uranium Mill Tailings Radiation Control Act (UMTRCA). DOE has not been issued licenses for these reviews. These reviews result in approximately \$3.7 million in NRC budgeted costs. Because over 95 percent of these costs are for NRC regulation of DOE West Valley and UMTRCA activities, both of which indirectly benefited operating power reactors, the NRC has included these costs in the annual charge for operating power reactors (Option 1). When post-closure is achieved for UMTRCA sites and the sites are under a NRC general license in accordance with 10 CFR 40.27 and 40.28, the NRC will reconsider the assessment of UMTRCA costs.

The GPA international cooperative safety program and the NMSS and GPA generic international safeguards program, which includes implementation of the United States/International Atomic Energy Agency (US/IAEA) Safeguards Agreement, result in budgeted costs of approximately \$4.9 million. These activities are not directly associated with any NRC licensee or any one class of licensees. However, approximately 70 percent of these costs are associated with GPA's international cooperative safety program that has a major component devoted to activities associated with reactors. U.S. power reactors receive an indirect benefit from this component. For example, the NRC, as part of its cooperative exchange program, receives extensive reactor incident information and valuable research results from foreign countries which are used to assist in improving the safe operation of U.S. power reactors. The other 30 percent of the costs are for activities associated with international safeguards, which primarily support nuclear nonproliferation. However, these activities do provide a minor benefit to power reactors (e.g., IAEA inspects reactors). Because a substantial portion of the total NRC costs for international activities benefits reactors, the NRC has

included the costs in the annual charge for operating power reactors (Option 1).

The generic budgeted costs relating to RES and NMSS LLW disposal activities amount to approximately \$9.8 million. The existing three LLW disposal facilities are licensed by Agreement States, and two of these facilities also have NRC licenses for disposal of special nuclear material. It is not reasonable to allocate the entire LLW generic regulatory costs to these two licensees. However, approximately 60 percent of LLW is generated by power reactors, 20 percent by fuel facilities, and 20 percent by materials licensees. Because these NRC licensees will indirectly receive the benefits from these NRC LLW expenditures, the NRC has determined that these licensees pay the costs of these activities (Option 2). The distribution of the costs would be based on the estimated amount of waste generated. Therefore, the Commission has assessed approximately 60 percent of the LLW generic costs (\$6 million) to operating power reactors, approximately 20 percent to fuel cycle facilities (\$1.9 million) and approximately 20 percent to materials licensees (\$1.9 million). Once the NRC issues a license to dispose of byproduct LLW, the Commission will reconsider the assessment of generic costs attributable to LLW disposal activities.

NMSS and RES are establishing the regulatory framework to regulate uranium enrichment facilities. The budgeted costs for these activities are approximately \$1.1 million. Although an application has been submitted to construct a uranium enrichment facility, no uranium enrichment licensee now exists upon which to assess an annual charge for these generic costs. Because uranium enrichment provides indirect benefits to operating power reactors, Option 1 was selected (i.e., recover the cost through annual charges to operating power reactors). Once the NRC issues a uranium enrichment facility license, the Commission will reconsider the assessment of generic costs attributable to uranium enrichment facilities.

Activities and budgeted costs not currently assessed 10 CFR part 170 licensing and inspection fees based on Commission policy. The second major category of costs covers those activities for which a specific identifiable applicant or licensee receives NRC services and for which fees could be assessed under part 170. However, fees are not currently assessed for these activities as a result of an existing Commission fee exemption policy decision.

Activities included in the category are license reviews and inspections for

nonprofit educational institutions (i.e., license reviews and inspections of certain nonpower reactors and materials users). These expenses, approximately \$2.2 million, are exempted from part 170 licensing and inspection fees (§ 170.11(a)(4)). This exemption is based on the Commission's long-standing policy of exempting educational institutions that use materials for the teaching and training of students or research (33 FR 10923; August 1, 1968). Note, however, that the costs of any commercial activities that are authorized by the licenses are recovered through fees under part 170. For example, fees are charged for licenses that authorize use of strontium-90 eye applicators in the treatment of eye disease and xenon-133 for blood flow pulmonary functions; distribution of *in vitro* kits and radiopharmaceuticals; services the licensee provides to other persons or licensees for a charge, such as soil density measurements and installation, calibration, and leak testing of equipment containing radioactive material, and use of licensed material for consulting services. Because many of these entities have limited ability to pass regulatory costs to their clients, assessing fees could affect the ability of these organizations to continue to perform the licensed services. In addition, these organizations provide broad national support and benefits to the education and health care fields.

The Commission after review of the public comments has decided to continue the current exemption from fees as established in § 170.11(a)(4). Because the NRC licensing and inspection activities associated with these licensees do not provide benefits to any other NRC class of licensees, the criteria of who can equitably and practicably afford to pay in this case lead to selecting Option 1 (i.e., allocate the costs to operating power reactors).

The other activity for which a specific recipient of an NRC service can be identified is the review of specific applications for standard reactor designs and early site permits. Consistent with NRC policy to promote standardization, existing NRC regulations defer, for up to 15 years, NRC costs for reviewing standard reactor designs. This is equivalent to the deferral of approximately \$5.4 million in FY 1991.

Based on the comments received and the Commission's reevaluation of this issue, the Commission has decided to change the deferral policy and assess the review costs to the vendors under part 170 as the work progresses on the standardized designs. Since part 170 has been amended to reflect this change as

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of the effective date of this final rule, the full effect of the revised regulation will not take place until FY 1992 and subsequent years. Therefore, for FY 1991 only, the Commission will recover the costs from operating power reactors (Option 1).

The final rule revising part 170 license fees will not become effective before August 1991, which will be too late for the Commission to collect the budgeted costs of \$1.3 million for its export and import activities in FY 1991. Therefore, to comply with the requirements of Public Law 101-508, the NRC will assess these costs to operating power reactors for FY 1991 only, on the basis of the criteria of who can equitably and practicably afford to pay. In future years, the costs associated with these activities are expected to be recovered under the revised part 170.

As a matter of policy, the Commission, in accordance with the Regulatory Flexibility Act, has decided to establish a maximum fee for small entities. As a result of placing a ceiling on the annual fee for small entities, \$4.9 million must be collected from other NRC licensees. In order for the Commission to recover 100 percent of its budget authority in accordance with the Public Law, the Commission will recover \$4.3 million from operating power reactors and \$6 million from large entities licensed under the materials program (Option 2).

In summary, the Commission has decided that the \$33.3 million identified for the three categories described above be distributed among the NRC classes of licensees as follows:

- \$28.9 million to operating power reactors;

- \$1.9 million to fuel facilities; and

- \$2.5 million to other materials licenses.

This distribution results in an additional charge of approximately \$259,000 per operating power reactor, \$143,500 for each HEU, LEU and UF₆ fuel facility; \$35,900 for other fuel facilities and waste disposal licensees in Category 4A; \$1,500 for each materials licensee in a category that generates a significant amount of low level waste, and \$100 for other material licensees. When added to the base annual fee of approximately \$2.7 million per reactor, this will result in an annual fee of approximately \$2.9 million per operating power reactor. The total fuel facility annual fee would be between \$683,000 and \$1.6 million. The total annual fee for materials licenses would vary depending on the fee category(ies) assigned to the license.

These additional charges would recover NRC costs not directly or solely attributable to a specific class of NRC licensees or costs not recovered from all NRC licensees on the basis of Commission policy decisions. However, because of the previously discussed Commission policies, the NRC will recover them from the designated classes of licensees. In adopting this approach, the Commission notes that in prior litigation over NRC annual fees, the U.S. Court of Appeals for the District of Columbia concluded that the NRC "did not abuse its discretion by failing to impose the annual fee on all licensees," *Florida Power & Light Co. v. NRC*, 846 F.2d 765,770 (D.C. Cir. 1988), cert. denied, 109 S. Ct. 1952 (1989). As noted earlier, the conferees on Public Law 101-508 have acknowledged the D.C. Circuit's holding that the Commission was within its legal discretion not to impose fees on all licensees.

For FYs 1992 through 1995, those annual fees of less than \$100,000 will be billed once a year during the first quarter of the FY. Because there are thousands of licensees who would pay less than \$100,000 per year, quarterly billings would impose additional administrative costs upon the NRC that cannot be justified. Annual fees of \$100,000 or more will be billed on a quarterly cycle.

V. Section-by-Section Analysis

The following analysis of those sections that are affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, U.S. Code of Federal Regulations.

Part 52

Section 52.19 Permit and Renewal Fees

Section 52.19 is amended to remove the reference to deferred recovery.

Section 52.49 Fees for Review of Applications

Section 52.49 is amended to remove the reference to deferred recovery.

Part 71

Section 71.0 Purpose and Scope

Section 71.0(c) is amended to include certificate of compliance holders.

Section 71.4 Definitions

In this section, the term "certificate holder" is added to mean a person who holds a Certificate of Compliance or other package approval issued by the Commission.

Section 71.93 Inspection and Tests

Section 71.93(a) is broadened to include certificate holders as well as licensees.

Part 170

Section 170.2 Scope

This section is modified to add new paragraphs (o), (p) and (q). Paragraph (o) will expand the scope of part 170 to cover those persons who may be potential applicants and file documents, analyses, or reports for Commission review and/or consult with the Commission. This may include any company, corporation, individual, unit of State or local government, or any other party over whom NRC has regulatory authority under its enabling legislation or as established in attendant regulations. This amendment is to clarify that, in the event a person aborts the attempt to develop and seek a license and never files an application with the NRC after the NRC has spent time consulting with a potential applicant and/or reviewing application related documents, analyses, or reports, that the NRC will recover, through fees, any preapplication/licensing review costs. Paragraph (p) expands the scope of part 170 to cover an applicant for or holder of an import or export license issued in accordance with part 110 of this chapter. Paragraph (q) expands the scope of part 170 to cover Agreement State licensees who register under the general license requirements of 10 CFR part 150 including NRC inspections conducted of activities covered under the general license. These actions are consistent with the intent of Congress to assess fees so that each applicant, licensee, or person pays NRC the full cost of all identifiable regulatory services received by the applicant, licensee, or person.

Section 170.3 Definitions

Four definitions are added: *Act*, meaning the Atomic Energy Act; *Agreement State*, now used in part 170 because Agreement State licensees who file Form 241 with the NRC for review or who receive NRC inspections under the reciprocity provisions of 10 CFR 150.20 will become subject to the licensing and inspection fees of this part and *High Enriched Uranium* and *Low Enriched Uranium* because fees are included for these specific categories of export and import licenses.

Section 170.11 Exemptions

This section is amended to remove the current exemptions in § 170.11(a) (1), (2), (8), (9) and (11). As a result, import and export licensees will be subject to the

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fees established in §§ 170.21 and 170.31, and State and local government agencies and Indian Tribes and Indian organizations, and licenses issued by the NRC specifically authorizing depleted uranium for shielding are subject to the licensing and inspection fees in § 170.31 as well as the annual fees established for the first time in § 171.16.

Section 170.12 Payment of Fees

This section is amended to remove the language in paragraphs (b), (c), (d) and (e)(2) relating to deferral of fees for review of standardized reactor designs because these costs will no longer be deferred but will be assessed on or after the effective date of this final rule.

Section 170.20 Average Cost Per Professional Staff Hour

This section is amended to reflect an agency-wide professional staff-hour rate based on FY 1991 costs. Accordingly, the professional staff-hour rate for NRC for FY 1991 for all fee categories that are based on full cost is \$115 per hour, or \$200,900 per direct FTE. This rate is based on the FY 1991 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF as follows:

1. All direct FTEs are identified by mission area (see Table II).

TABLE II.—ALLOCATION OF DIRECT FTEs BY MISSION AREA

Mission area	No. of direct FTEs ¹
Reactor Safety & Safeguards Regulation...	1015.2
Nuclear Safety Research.....	148.1
Nuclear Material & Low-Level Waste Safety & Safeguards Regulation.....	273.9
Special and Independent Reviews, Investigations, and Enforcement.....	71.0
Nuclear Material Management and Support.....	22.0
Total direct FTE.....	² 1530.2

¹ Regional employees are counted in the office of the program each supports.

² In FY 1991, 1530.2 FTEs of the total 3,160 FTEs are considered to be in direct support of NRC non-NWF programs. The remaining 1,629.8 FTEs will be considered overhead and general and administrative.

2. In determining the cost for each direct labor FTE the following approach is used: NRC budgeted costs are allocated to the following four major categories (see Table III):

- Salaries and benefits.
- Administrative support.
- Travel.
- Program support.

3. Direct program support, the use of contract or other services in support of the line organization's direct program, is

excluded because these costs are charged directly through the various categories of fees.

4. All other costs (i.e., Salaries and Benefits, Travel, Administrative Support and Program Support contracts/services for G&A activities) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Using this method, which was described in the proposed rule published December 1, 1989 (54 FR 49763), and excluding direct Program Support funds, the remaining \$307.4 million allocated uniformly to the direct FTEs (1530.2) results in a rate of \$200,900 per FTE for FY 1991. The Direct FTE Hourly Rate is \$115 per hour (rounded down to the nearest whole dollar). This rate is calculated by dividing \$307.4 million by the number of direct FTEs (1530.2 FTE) and the number of productive hours in one year (1,744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities." This section is revised to indicate that the professional staff-hour rate for FY 1992 through 1995 will be published as a Notice in the Federal Register during the first quarter of each fiscal year.

TABLE III.—FY 1991 BUDGET AUTHORITY BY MAJOR CATEGORY

(dollars in millions)

Salaries and benefits.....	\$213.8
Administrative support.....	74.6
Travel.....	12.4
Total nonprogram support obligations.....	\$300.8
Program Support.....	144.5
Total Budget Authority.....	\$445.3
Less Program support (Direct Program).....	137.9
Budget Allocated to Direct FTE.....	\$307.4

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections and Import and Export Licenses

The licensing and inspection fees in this section, which are based on full-cost recovery, are revised to reflect the FY 1991 budgeted costs and to more completely recover costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate as shown in § 170.20 and any direct program support (contractual services) cost expended by the NRC. Any professional hours expended on or after the effective date of this rule will be

assessed at the FY 1991 rate shown in § 170.20.

Section 170.21, Category J, Special Projects, is amended to (1) eliminate the ceiling of \$50,000 for topical report reviews and (2) provide for the recovery of preapplication/licensing activities. The fees for these reviews are based on full-cost recovery. Again, this action will recover the full cost to the NRC of all identifiable regulatory services an applicant licensee, or person receives.

Footnote 2 of § 170.21 is revised to provide that for those applications currently on file and pending completion, the professional hours expended up to the effective date of this rule will be assessed at the professional rates established for the June 20, 1984, January 30, 1989 and July 2, 1990 rules, as appropriate. With respect to topical report applications currently on file and which are still pending completion of the review, for which review costs have reached the applicable fee ceiling established by the July 2, 1990 rule, the cost incurred after any applicable ceiling was reached through the effective date of this rule will not be billed to the applicant. Any professional hours expended for the review of topical report applications, amendments, revisions or supplements to a topical report on or after the effective date of this rule will be assessed at the rate established by § 170.20. Footnote 4 is removed because the costs for standardized reactor design reviews will no longer be deferred but will be assessed on or after the effective date of this final rule. Footnote 5 is removed because the ceiling for topical report reviews is eliminated.

In § 170.21, a new Category K, import and export licenses, is added to recover those costs that are expended on applications filed with the Commission on or after the effective date of the final rule for issuing import or export licenses for production and utilization facilities and components for production and utilization facilities that are subject to NRC import and export regulations of part 110. In this final rule, the fees have been changed to flat fees and must be remitted with the application for the license or amendment. This represents a change from the proposed rule where the fees were to be assessed based on the professional staff hours expended for the review of the application.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, Including Inspections and Import and Export Licenses

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The licensing and inspection fees in this section are also modified to reflect the FY 1991 budgeted costs and to more completely recover costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. Those flat fees, which are based on the average time to review an

application or conduct an inspection, are increased by 25 percent across the board to reflect the increase in the professional hourly rate from \$92 per hour in FY 1990 to \$115 per hour in FY 1991. The increase is applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D and 10.B,

and will be assessed for applications filed or inspections conducted on or after the effective date of the final rule.

For example, an industrial radiography licensee (Category 3.0.) will pay revised license and inspection fees as follows:

Type of fees	Current fees	Increase (%)	Final FY 1991 fees
Application.....	\$2,400	25	\$3,000
Renewal.....	1,400	25	1,800
Amendment.....	390	25	490
Routine Inspection.....	920	25	1,200
Nonroutine Inspection.....	2,000	25	2,500

Most of this increase is due to the fact that certain overhead and G&A costs were previously excluded in developing the professional hourly rate and now have been included in the rate to recover approximately 100 percent of the NRC's budget authority for FY 1991. For those licensing, inspection, and review fees assessed that are based on full-cost recovery (cost for professional staff hours plus any contractual services) the revised hourly rate of \$115, as shown in § 170.20, will apply to those professional staff hours expended on or after the effective date of this rule.

New inspection fees have been added for fee categories 9A through 9D. The NRC has conducted a pilot inspection program of manufacturers and initial distributors of sealed sources and devices containing a sealed source. The NRC plans to continue this inspection program. To recover the costs related to these inspections, fees for all routine and nonroutine inspections conducted on or after the effective date of the final rule will be assessed on a per-inspection basis. The fees assessed for both routine and nonroutine inspections will be based on the full cost of conducting the inspection (professional staff hours and any contractual services costs expended) and will be billed quarterly in accordance with § 170.12(g). Fees for routine inspections of these manufacturers and distributors are estimated to range from \$2,000 to \$3,000 on the basis of information gathered on some of the previous inspections. The inspection fees are payable upon notification by the Commission. Fees for inspection costs would include preparation time, time on the site, and documentation time related to the specific inspection, but would exclude the time involved in processing and issuing a notice of violation or a civil penalty.

New inspection fees have also been added for fee categories 10A and 10B. The NRC has completed Phase One of a pilot program relating to the transportation package-supplier inspection program. On the basis of the results of Phase One, the NRC is proceeding to implement a permanent transportation package-suppliers inspection program. This revision is in response to the fact that NRC is conducting inspections focused on implementation and procedures of part 71 QA programs. Fees for all routine and nonroutine inspections conducted on or after the effective date of the final rule will be assessed on a per-inspection basis and will be billed quarterly based on the full cost of conducting the inspections. The inspection fees are payable upon notification by the Commission that they are due. Inspection costs would include preparation time, time on the site, documentation time, and any associated contractual services costs but would exclude the time involved in processing and issuing a notice of violation or a civil penalty. Fees for routine inspections of these programs are estimated to range from \$6,000 to \$22,000 based on information gathered on some of the previous inspections.

Fee Category 12, Special Projects, is revised to (1) eliminate the ceiling of \$50,000 for topical report reviews and (2) provide for recovery of preapplication/licensing activities. Fees for these reviews will be based on full-cost recovery. The footnotes to § 170.31 are revised accordingly.

A new category 15, import and export licenses, is added in order to assess fees for the specific licenses issued by the NRC, pursuant to part 110, covering the import and export of special nuclear material, source material, byproduct material, heavy water (D₂O), tritium and

nuclear grade graphite. Applications for import and export licenses received on or after the effective date of the final rule will become subject to the fees in part 170 including those route approvals that may be required in conjunction with an import license. In this final rule, two changes have been made to the category. First, heavy water, tritium and nuclear grade graphite have been added because the Commission issues specific licenses covering these items. Second, the fees have been changed to flat fees and must be remitted with the application for the license. This represents a change from the proposed rule where the fees were to be assessed based on the professional staff hours expended for the review of the application.

A new Category 16, reciprocity, is added to include an application fee of \$600 to recover the costs expended by the Commission for the review of registrations (Form 241) which are filed by an Agreement State licensee indicating that the licensee intends to conduct activities in a non-Agreement State under the reciprocity provisions of § 150.20. Also included in the category is the reference to the inspection fees, which was a part of the proposed rule. Inspection fees will be assessed to those Agreement State licensees who are inspected by the NRC. The inspection fees assessed will be those inspection fees in § 170.31 for the fee category applicable to the license. These licensing and inspection fees are applicable to those applications filed with or inspections conducted by the NRC on or after the effective date of this final rule. The license fee represents a change from the proposed rule.

On October 16, 1986 (51 FR 36935), the NRC published a final rule in the *Federal Register* relating to 10 CFR part 35. As part of the final rule, the *in vivo*

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general license contained in § 35.31 was eliminated from the regulations. The Commission indicated that the former general licensees, all of whom were physicians, would receive a specific NRC license covering the clinical procedures authorized by the former general license. Eighty-nine new specific licenses were issued by the NRC in response to the applications received from the former general licensees. The Commission granted these specific licensees an exemption from part 170 application and renewal fees under 10 CFR 170.11(b) as long as the licensee's program was limited to the material uses described in § 35.31. The Commission will continue to honor that exemption from part 170 fees. However, these licensees are now subject to the new annual fees of part 171 (Category 7C) in that they will be expected to pay their share of the generic regulatory costs in order for the Commission to meet the statutory mandate of 100 percent recovery of its budget authority for FY 1991. Accordingly, these licensees will be billed annual fees in accordance with § 171.16 of these final regulations.

Part 171

Section 171.1 Purpose

This section is revised to include persons holding licenses to operate test and research reactors, facility and materials licenses, Certificates of Compliance, sealed source and device registrations, and approvals for QA programs who will be assessed an annual fee in addition to those persons licensed to operate a power reactor. These entities include those Government agencies that hold specific NRC licenses, approvals, certificates, or registrations.

Section 171.3 Scope

The scope of part 171 is expanded from any person holding a part 50 operating power reactor license, to any person holding a part 50 operating license, or a materials license, a holder of a Certificate of Compliance, a holder of a sealed source and device registration, or a holder of a Quality Assurance Program approval as defined in this part. A Government agency that holds any of these specific licenses, approvals, or certificates is also included within the scope of part 171.

Section 171.5 Definitions

The definitions of *Byproduct Material*,

Certificate Holder, *Government Agency*, *High Enriched Uranium Fuel*, *Low Enriched Uranium Fuel*, *Materials License*, *Quality Assurance Program Approval*, *Registration Holder*, *Research Reactor*, *Source Material*, *Special Nuclear Material*, and *Testing Facility* are added because these facilities and materials licensees, and holders of certificates, registrations, and approvals are subject to the appropriate annual fees in this part.

The definition of *Budget Authority* replaces the definition of *Budgeted Obligations* to clarify that the fees are based on the budget authority or the appropriation granted to the NRC for the FY by the Congress. The definition of *Overhead Costs* is revised to clarify that organizations previously excluded from the fee base are included because the Commission views these budgeted costs as support for all of its regulatory services provided to applicants, licensees, and certificate, registration and approval holders. These costs must be recovered in accordance with Public Law 101-508.

Section 171.11 Exemptions

A separate paragraph (a) has been added to provide for a specific exemption from annual fees for licenses issued to nonprofit educational institutions under certain conditions. The criteria for considering exemption requests from the annual fee for operating reactors will be continued. With respect to requests for exemption from the materials annual fees, the Commission proposes to set a high threshold for eligibility for any requested exemption. It is the Commission's expectation that exemptions will be rarely granted. To be considered for exemption, the licensee must provide the NRC clear and convincing evidence that the annual fee is not based on a fair and equitable allocation of the NRC costs. Factors that the NRC will consider in reaching a decision on exemptions are:

(1) Whether there are data specifically indicating that the assessment of the annual fee will result in a significantly disproportionate allocation of costs to the licensee or class of licensees;

(2) Whether there is evidence that the generic costs attributable to the class of licensees are neither directly or indirectly related to the specific class of licensee nor explicitly allocated to the licensee by Commission policy decision; and

(3) Any other relevant matter that shows the annual fee was not based on a fair and equitable allocation of NRC costs.

Section 171.13 Notice

This section is revised to indicate that the amount of the annual fees for reactor and materials licensees would be published as a Notice in the **Federal**

Register during the first quarter of FY 1992 through 1995 unless otherwise specified by the Commission. This requirement is consistent with past practice with respect to operating power reactors and with the requirement that the annual fees of less than \$100,000 be paid once a year (during the first quarter of the FY). Those annual fees of \$100,000 or more would be paid on a quarterly basis. If the Commission is unable to publish a notice during the first quarter of Fiscal Years 1992-1995, quarterly payments of the annual fees of \$100,000 or more shall continue and be based on the applicable annual fees as shown in §§ 171.15 and 171.16 of the regulations until such time as a Notice concerning the revised amount of the fees for the fiscal year are published by the Commission.

Section 171.15 Annual Fee: Reactor Operating Licenses

The section heading is revised to indicate that both power reactors and nonpower (test and research) reactors will be assessed annual fees. Section 171.15(a) is revised to include test and research reactors in addition to operating power reactors, and paragraphs (b) and (c) are revised to take into consideration the requirement of the Public Law to recover approximately 100 percent of the NRC budget. Paragraph (b) provides the basis for proposing a base annual fee to be assessed to each operating power reactor according to the principle that those licensees requiring the greatest expenditure of NRC resources will pay the greatest annual charge. Table IV shows the budgeted costs that have been allocated to operating power reactors. They have been expressed in terms of the NRC's FY 1991 budget mission areas and program elements. The resulting total base annual fee amount for power reactors is also shown.

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TABLE IV.—ALLOCATION OF NRC FY 1991 BUDGET TO POWER REACTORS BASE FEES ¹

	Program element total		Allocated to power reactors	
	Program support (\$, K)	Direct FTE	Program support (\$, K)	Direct FTE
Reactor safety and safeguards regulation (RSSR):				
Power reactor applications reviews.....	\$1400	15.9	\$1400	15.9
Standard reactor designs reviews.....	1473	32.6	200	12.2
Other reviews.....	350	3.7	0	1.2
Reactor license renewal.....	1408	14.7	1408	14.7
Reactor performance evaluation.....	718	33.6	718	33.6
Evaluation of licensee performance.....	700	33.7	700	33.7
Reactor accident management.....	1000	11.3	1000	11.3
Human performance evaluation.....	650	3.2	650	3.2
Reactor operator examinations.....	6250	51.8	6010	48.8
Resident inspectors.....		190.7		190.7
Region-based inspections.....	5708	279.5	5708	274.3
Specialized inspections.....	3117	65.6	3117	65.6
Project management.....		133.4		133.4
Safety evaluation of licensing actions.....	9191	127.7	9191	127.7
Regulatory improvements.....	335	17.8	335	17.8
RSSR mission area total.....			\$30,437	984.1
Nuclear safety research (NSR):				
Integrity of reactor components.....	\$27230	21.5	\$27230	21.5
Prevent damage to reactor cores.....	21675	32.0	21675	32.0
Reactor containment performance.....	17330	12.0	17330	12.0
Generic and USIs.....	3180	28.1	3180	28.1
Standard and advanced reactors.....	1825	6.0	1825	6.0
Fuel cycle/transportation/safeguards.....	1025	4.0	631	2.0
Developing and improving regulations.....	5065	15.0	5065	15.0
Severe accident implementation.....	2669	10.0	2669	10.0
Radiation protection/health effects.....	4600	11.0	3450	8.3
NSR mission area total.....			\$83,055	134.9
Nuclear material and low level waste safety & safeguards regulation:				
Threat and event assessment/international safeguards.....	\$430	12.8	\$430	8.3
Decommissioning.....	1200	14.4	100	4.2
NMLLWSSR mission area total.....			\$530	12.5
Special and independent reviews, investigations, and enforcement:				
Diagnostic Evaluations.....	\$350	7.0	\$350	7.0
Incident Investigations.....	50	3.0	50	3.0
NRC Incident Response.....	2200	27.0	2200	27.0
Operational Data Analysis.....	1973	25.0	1873	23.0
Performance Indicators.....	980	4.0	980	4.0
Operational Data Collection/Dissemination.....	2147	5.0	2147	5.0
SIRIE mission area total.....			\$7600	69.0
TOTAL.....			\$121,622	1,200.5
Total base fee amount allocated to power reactors—\$362.8 million ²				
Less estimated part 170 power reactor fees— — 71.9 million				
Part 171—Base fees for operating power reactors— \$290.9 million				

¹ Base annual fees include all costs attributable to the operating power reactor class of licensees. The base fees do not include costs allocated to power reactors for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

Based on the information in Table IV, the base annual fees to be assessed for FY 1991 are the amounts shown in Table V below for each nuclear power operating license.

TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS

Reactors	Containment type	Annual fee
Westinghouse:		
1. Beaver Valley 1.....	PWR Large Dry Containment.....	\$2,673,000
2. Beaver Valley 2.....	do.....	2,673,000
3. Braidwood 1.....	do.....	2,673,000
4. Braidwood 2.....	do.....	2,673,000
5. Byron 1.....	do.....	2,673,000
6. Byron 2.....	do.....	2,673,000
7. Callaway 1.....	do.....	2,673,000
8. Comanche Peak 1.....	do.....	2,673,000
9. Diablo Canyon 1.....	do.....	2,659,000
10. Diablo Canyon 2.....	do.....	2,659,000
11. Farley 1.....	do.....	2,673,000
12. Farley 2.....	do.....	2,673,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
13. Ginna	do	2,673,000
14. Haddam Neck	do	2,673,000
15. Harris 1	do	2,673,000
16. Indian Point 2	do	2,673,000
17. Indian Point 3	do	2,673,000
18. Kewaunee	do	2,673,000
19. Millstone 3	do	2,673,000
20. North Anna 1	do	2,673,000
21. North Anna 2	do	2,673,000
22. Point Beach 1	do	2,673,000
23. Point Beach 2	do	2,673,000
24. Prairie Island 1	do	2,673,000
25. Prairie Island 2	do	2,673,000
26. Robinson 2	do	2,673,000
27. Salem 1	do	2,673,000
28. Salem 2	do	2,673,000
29. San Onofre 1	do	2,659,000
30. Seabrook 1	do	2,673,000
31. South Texas 1	do	2,673,000
32. South Texas 2	do	2,673,000
33. Summer 1	do	2,673,000
34. Surry 1	do	2,673,000
35. Surry 2	do	2,673,000
36. Trojan	do	2,659,000
37. Turkey Point 3	do	2,673,000
38. Turkey Point 4	do	2,673,000
39. Vogtle 1	do	2,673,000
40. Vogtle 2	do	2,673,000
41. Wolf Creek 1	do	2,673,000
42. Zion 1	do	2,673,000
43. Zion 2	do	2,673,000
44. Catawba 1	PWR—Ice Condenser	2,658,000
45. Catawba 2	do	2,658,000
46. Cook 1	do	2,658,000
47. Cook 2	do	2,658,000
48. McGuire 1	do	2,658,000
49. McGuire 2	do	2,658,000
50. Sequoyah 1	do	2,658,000
51. Sequoyah 2	do	2,658,000
Combustion Engineering:		
1. Arkansas 2	PWR Large Dry Containment	2,658,000
2. Calvert Cliffs 1	do	2,658,000
3. Calvert Cliffs 2	do	2,658,000
4. Ft. Calhoun 1	do	2,658,000
5. Maine Yankee	do	2,658,000
6. Millstone 2	do	2,658,000
7. Palisades	do	2,658,000
8. Palo Verde 1	do	2,644,000
9. Palo Verde 2	do	2,644,000
10. Palo Verde 3	do	2,644,000
11. San Onofre 2	do	2,644,000
12. San Onofre 3	do	2,644,000
13. St. Lucie 1	do	2,658,000
14. St. Lucie 2	do	2,658,000
15. Waterford 3	do	2,658,000
Babcock & Wilcox:		
1. Arkansas 1	do	2,658,000
2. Crystal River 3	do	2,658,000
3. Davis Besse 1	do	2,658,000
4. Oconee 1	do	2,658,000
5. Oconee 2	do	2,658,000
6. Oconee 3	do	2,658,000
7. Three Mile Island 1	do	2,658,000
General Electric		
1. Browns Ferry 1	Mark I	2,648,000
2. Browns Ferry 2	do	2,648,000
3. Browns Ferry 3	do	2,648,000
4. Brunswick 1	do	2,648,000
5. Brunswick 2	do	2,648,000
6. Clinton 1	Mark III	2,873,000
7. Cooper	Mark I	2,648,000
8. Dresden 2	do	2,648,000
9. Dresden 3	do	2,648,000
10. Duane Arnold	do	2,648,000
11. Fermi 2	do	2,648,000
12. Fitzpatrick	do	2,648,000
13. Grand Gulf 1	Mark III	2,873,000
14. Hatch 1	Mark I	2,648,000
15. Hatch 2	do	2,648,000
16. Hope Creek 1	do	2,648,000
17. LaSalle 1	Mark II	2,664,000
18. LaSalle 2	do	2,664,000
19. Limerick 1	do	2,664,000
20. Limerick 2	do	2,664,000
21. Millstone 1	Mark I	2,648,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
22. Monticello	do	2,648,000
23. Nine Mile Point 1	do	2,648,000
24. Nine Mile Point 2	Mark II	2,664,000
25. Oyster Creek	Mark I	2,648,000
26. Peach Bottom 2	do	2,648,000
27. Peach Bottom 3	do	2,648,000
28. Perry 1	Mark III	2,873,000
29. Pilgrim	Mark I	2,648,000
30. Quad Cities 1	do	2,648,000
31. Quad Cities 2	do	2,648,000
32. River Bend 1	Mark III	2,873,000
33. Susquehanna 1	Mark II	2,664,000
34. Susquehanna 2	do	2,664,000
35. Vermont Yankee	Mark I	2,648,000
36. Washington Nuclear 2	Mark II	2,650,000
Other Reactors:		
1. Three Mile Island 2	B&W PWR-Dry Containment	2,658,000
2. Rancho Seco	do	2,644,000
3. Big Rock Point	GE Dry Containment	2,648,000
4. Shoreham	GE Mark II	2,664,000
5. Yankee Rowe	Westinghouse PWR Dry Containment	2,673,000
6. Ft. St. Vrain	High Temperature Gas Cooled	2,155,000

The "Other Reactors" listed in Table V have not been included in the fee base. With respect to Big Rock Point and Yankee Rowe, the Commission in this final rule hereby grants partial exemptions from the FY 1991 annual fees based on requests filed with the Commission in accordance with § 171.11. The total amount of \$733,000 to be paid by the two licensees has been subtracted from the total amount to be assessed operating power reactors as a surcharge. The Commission, in this final rule, hereby grants full exemptions from the FY 1991 annual fees to Ft. St. Vrain,

Rancho Seco, Shoreham, and Three Mile Island 2 based on the fact that these reactors are either permanently or prematurely shutdown and do not intend to operate in the future.

Consistent with past policy and practice, if an applicant receives its operating license during the year, it will pay only a prorated annual fee for that year in accordance with the provisions of § 171.17. Fees will continue to be collected under part 170 up to the time of issuance of the OL.

Paragraph (c) is revised to assess an additional charge, which will be added

to the base annual fee for each operating power reactor shown in Table V, and to provide the method for calculating the additional charge. This charge will recover those NRC budgeted costs that are not directly or solely attributable to operating power reactors, but nevertheless must be recovered to comply with the requirements of the Public Law. The Commission has made a policy decision to recover these costs from operating power reactors.

The FY 1991 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

Category of costs	FY 1991 budgeted costs (dollars in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee:	
a. reviews for DOE/DOD reactor projects, West Valley Demonstration Project, DOE Uranium Mill Tailing Radiation Control Act (UMTRCA) actions	\$3.7
b. international cooperative safety program and international safeguards activities	4.9
c. 60% of low level waste disposal generic activities; and	6.0
d. uranium enrichment activities	1.1
2. Activities not assessed Part 170 licensing and inspection fees or Part 171 annual fees based on Commission policy:	
a. licensing and inspection of nonprofit educational institutions; and	2.2
b. cost not recovered from Part 171 for small entities	4.3
3. Standard reactor design approval and certification reviews (FY 1991 only)	5.4
4. Export and import licensing activities (FY 1991 only)	1.3
Subtotal	\$28.9
Less amount to be assessed to small, older reactors with partial exemption under Part 171	-.7
Total budgeted costs	\$28.2

The annual additional charge is determined as follows:

$$\frac{\text{Total budgeted costs}}{\text{Total number of operating power reactors}} = \frac{\$28.2 \text{ million}}{109} = \$259,000 \text{ per operating power reactor}$$

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On the basis of this calculation, an operating power reactor, Beaver Valley 1, for example, would pay a base annual fee of \$2,673,000 and an additional charge of \$259,000 for a total annual fee of \$2,932,000 for FY 1991.

A new paragraph (d) is added that shows, in summary form, the amount of the total FY 1991 annual fee, including the added charge, to be assessed for each major type of operating power reactor.

Paragraphs (e) and (f) are added which show the amount of the FY 1991 annual fee for non-power (test and research) reactors and indicate that for FY 1992-1995 the annual fees for operating reactors will be calculated and assessed in accordance with § 171.13. In FY 1991, \$500,000 in costs are attributable to those commercial and Federal government licensees that are licensed to operate test and research reactors. Applying these costs uniformly

to those nonpower reactors which are not exempt from fees results in an annual fee of \$50,000 per operating licensee.

Section 171.16 Annual fees: Materials licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government agencies licensed by the NRC.

Paragraphs (a), (b), (c), (d), and (e) are added and establish annual fees for materials licensees, including Government agencies licensed by the NRC. Paragraph (a) indicates those persons who would be subject to the annual fees. Paragraph (b) provides the basis upon which the base annual fees will be determined. Paragraph (c) provides the criteria whereby a licensee, who qualifies as a small entity under the Commission's regulations, may pay a reduced annual fee established for a

small entity. Paragraph (d) is a listing of the annual fees to be assessed. These fees are necessary to recover the FY 1991 generic costs totalling \$46.0 million applicable to fuel facilities, uranium recovery facilities, holders of transportation certificates and QA program approvals, and other materials licensees, including holders of sealed source and device registrations.

Tables VI and VII show the NRC program elements and resources that are attributable to fuel facilities and material users, respectively. The costs attributable to the uranium recovery class of licensees are those associated with uranium recovery licensing and inspection. For transportation, the costs are those budgeted for transportation research, licensing and inspection. Likewise the budgeted costs for spent fuel storage are those for spent fuel storage research, licensing and inspection.

TABLE VI. — ALLOCATION OF NRC FY 1991 BUDGET TO FUEL FACILITY BASE FEES¹

	Total		Allocated to fuel facility	
	Program support \$,K	FTE	Program support \$,K	FTE
Nuclear safety research:				
Fuel cycle/transportation/safeguards	\$1025	4.0	\$50	0.5
Rad. protection/health effects	4600	2.0	101	0.3
NSR mission area total			\$151	0.8
Nuclear material and low level waste safety and safeguards regulation:				
Fuel facilities/spent fuel	\$2730	39.1	\$1390	31.2
Event evaluation		16.8		3.4
Safeguards licensing/inspection	775	21.2	655	16.8
Decommissioning	1200	14.4	220	2.0
NMLLWSSR mission area total			\$2,265	53.4
Total			\$2,416	54.2
Total base fee amount allocated to fuel facilities— \$13.3 million ²				
Less part 170 fuel facility fees— — 2.7 million				
Part 171—base fees for fuel facilities— \$10.6 million				

¹ Base annual fee includes all costs attributable to the fuel facility class of licensees. The base fee does not include costs allocated to fuel facilities for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

TABLE VII.—ALLOCATION OF FY 1991 BUDGET TO MATERIAL USERS BASE FEES ¹

	Total		Allocated to materials users	
	Program support \$,K	FTE	Program support \$,K	FTE
Nuclear Safety Research Mission Area:				
Radiation Protection/Health Effects	\$4600	11.0	\$1049	2.5
Nuclear Material & Low Level Waste Safety & Safeguards Regulation:				
Licensing/Inspection of Materials Users	2172	105.3	2154	104.4
Event Evaluation		16.8		13.4
Decommissioning	1200	14.4	880	7.0
NMLLWSSR Mission Area Total	\$3372	136.5	\$3034	124.8
Special and Independent Reviews, Investigations, and Enforcement:				
Operational Data Analysis(PE)	\$1973	25	100	2.0
Total			\$4,183	129.3
Base Amount Allocated to Materials Users (millions)				² \$30.2
Less Part 170 Material Users Fees (millions)				—3.0
Part 171 Base Fees for Material Users (millions)				\$27.2

¹ Base annual fee includes all costs attributable to the materials class of licensees. The base fee does not include costs allocated to materials licensees for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

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The allocation of the NRC's \$10.6 million in budgeted costs to the individual fuel facilities is based primarily on the conferees' guidance that licensees who require the greatest

expenditure of NRC resources should pay the greatest annual fee. Since the three high-enriched fuel manufacturing facilities possess strategic quantities of nuclear materials, more NRC generic

safety and safeguards costs (e.g., physical security) are attributable to these facilities.

Using this approach, the base annual fee for each facility is shown below.

	Annual fee (dollars in thousands)		
	Safeguards	Safety	Total
High Enriched Fuel:			
United Nuclear Corporation.....	\$750	\$750	\$1,500
Nuclear Fuel Services.....	750	750	1,500
Babcock and Wilcox	750	750	1,500
Subtotal.....	\$2,250	\$2,250	\$4,500
Low Enriched Fuel:			
Advanced Nuclear Fuels	156	537	693
Babcock and Wilcox	156	537	693
General Electric	156	537	693
Westinghouse	156	537	693
Combustion Engineering (Hematite)	156	537	693
Combustion Engineering (Windsor).....	156	537	693
Subtotal.....	\$936	\$3,222	\$4,158
UF ₆ Conversion:			
Allied Signal Corp.....	—	540	540
Sequoyah Fuels Corp	—	540	540
Subtotal.....	—	\$1,080	\$1,080
Other fuel facilities (9 facilities at \$100,000 each).....	—	900	900
Total	\$3,186	\$7,452	\$10,638

The allocation of the costs attributable to uranium recovery is also based on the conferees' guidance that licensees who require the greatest expenditure of NRC resources should pay the greatest annual fee. It is estimated that 90% of the \$1.9 million for uranium recovery is attributable to uranium mills in operation, standby, or with reclamation plans under review, and in-situ leach facilities (Class I facilities). The remaining 10% would be allocated to the other uranium recovery facilities (e.g. R&D in-situ leach projects, secondary recovery operations and heap-leach operations). The resulting annual fees for each class of licensee are:

Class I facilities \$100,000
Other facilities \$67,000

For spent fuel storage licenses, the Commission is changing the final rule. Based on the comments received, as indicated in section III of this final rule, the proposed fee structure would result in unintended effects on the implementation of the new part 72 rule. That is, instead of applying for a Certificate of Compliance, vendors would apply for a topical report approval in order to avoid the annual fee. This would result in shifting the fee to the specific ISFSI licensees. Therefore, the Commission will charge the generic costs of \$1.5 million uniformly to those licensees who hold specific or general licenses for receipt and storage of spent fuel at an ISFSI. This results in a revised annual fee of \$375,000. Fee Category 13 of § 171.16 has been modified to include annual fees for general licenses for storage of spent fuel under § 72.210 of part 72 of this chapter.

To equitably and fairly allocate the \$27.2 million attributable to the

approximately 9,000 diverse material users and registrants, the annual fee was based on the part 170 new application and routine inspection fees. Because the application and inspection fees are indicative of the complexity of the license, this approach provided a proxy for allocating the costs to the diverse categories of licensees based on how much it costs NRC to regulate each category. The fee calculation also considered the inspection frequency, because the inspection frequency is indicative of the safety risk and resulting regulatory costs associated with the categories of licensees. In summary, the annual fee for each category of license is developed as follows:

$$\text{Annual Fee} = (\text{Application Fee} + \text{Inspection Fee/Inspection Priority}) \times \text{Constant} + (\text{Unique Category Costs})$$

The constant is the multiple necessary to recover \$27.2 million and is 2.4 for FY 1991. The unique costs are any special costs that the NRC has budgeted for a specific category of licensees. For FY 1991, unique costs of \$2.4 million were identified for the medical improvement program which is attributable to medical licensees. Materials licensees may pay a reduced fee if they certify on NRC Form 526 that they are a small entity.

To recover the \$4.8 million attributable to the transportation class of licensees, \$1.2 million will be assessed to the Department of Energy (DOE) to cover all of its transportation casks under new Category 18. The remaining transportation costs (\$3.6 million) for generic activities are allocated to holders of approved QA plans. The annual fee for approved QA

plans is \$29,000 for users and fabricators and \$1,700 for users only.

The amount or range of the base annual fees for all material licensees is summarized as follows:

MATERIALS LICENSES BASE ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel.	\$1.5 million.
Part 70—Low enriched fuel.	\$693,000.
Part 40—UF ₆ conversion....	\$540,000.
Part 40—Uranium recovery.	\$67,000 to \$100,000.
Part 30—Byproduct Material.	¹ \$290 to \$10,700.
Part 71—Transportation of Radioactive Material.	\$1,700 to \$29,000.
Part 72—Independent Storage of Spent Nuclear Fuel.	\$375,000.

¹ Does not consider the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies which is \$200,000.

If a person holds more than one license, certificate, registration, or approval, the annual fee is the cumulative total of annual fees applicable to the licenses, certificates, registrations or approvals held by that person. For those licenses that authorize more than one activity on a single license (e.g., human use and irradiator activities), annual fees will be assessed for each fee category applicable to the license. Licensees paying annual fees under Category 1.A.(1) are not subject to the annual fees of Category 1.C and 1.D for sealed sources authorized in the same license. Government agencies licensed by the NRC will pay the annual fee for the particular fee category(ies) applicable to the license, certificate,

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registration or approval, except for those Federal military agencies to which the NRC has granted a "Master" materials license (broad-scope license covering multiple activities performed at multiple locations), in which case the annual fee for fee Category 17 is applicable.

Paragraph (e) establishes an additional charge which is added to the base annual fees shown in Paragraph (d) of this final rule. This surcharge has been shown, for convenience, with the applicable categories in paragraph (d). The additional charge will recover approximately 40 percent of the NRC budgeted costs of \$9.8 million relating to LLW disposal generic activities because 40 percent of the LLW is generated by these licensees. Although these NRC LLW disposal regulatory activities are not directly attributable to materials licensees, the costs nevertheless must be recovered in order to comply with the requirements of the Public Law. The Commission has made a policy decision to recover approximately 40 percent of these LLW costs from materials licensees. The FY 1991 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

Category of costs	FY 1991 budgeted costs (dollars in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee, i.e., 40% of LLW disposal generic activities.....	\$3.8

Of the \$3.8 million budgeted costs shown above for LLW activities, 50 percent of the amount (\$1.9 million) would be allocated to fuel facilities included in part 171 (20 facilities), as follows: \$143,400 per HEU, LEU and UF₆ facility and \$35,800 for the other 9 fuel facilities. The remaining 50 percent (\$1.9 million) would be allocated to the material licensees in categories that generate low level waste (1,229 licensees) as follows: \$1,400 per materials licensee except for those in Categories 4A and 17. Those licensees that generate a significant amount of low level waste for purposes of the calculation of the \$1,400 surcharge are in fee Categories 1.B, 1.D, 2.C, 3.A, 3.B, 3.C, 3.L, 3.M, 3.N, 4.B, 4.C, 5.B, 6.A, and 7.B. The surcharge for Categories 4A and 17, which also generate and/or dispose of low level waste, is \$35,800 for Category 4A and \$22,500 for Category 17. Based on comments received, Categories 2.A.(2) and 7C have been deleted in this final rule and will not be subject to the surcharge because the low level waste

generated by these licensees is either held for decay and disposed of through incineration or normal trash removal, or disposed of on site.

Of the \$4.9 million not recovered from small entities, \$0.6 million would be allocated to fuel facilities and other materials licensees. This results in a surcharge of \$100 per category for each licensee that is not eligible for the small entity fee.

On the basis of this calculation, a fuel facility, a high enriched fuel fabrication licensee, for example, would pay a base annual fee of \$1,500,000 and an additional charge of \$143,500 for LLW activities and small entity costs. A medical center with a broad-scope program would pay a base annual fee of \$8,400 and an additional charge of \$1,500, for a total annual fee of \$9,900 for FY 1991.

Section 171.17 Proration

This section is revised to indicate that only the annual fees for operating power reactors that may be issued a license during the FY will be prorated depending on when the license is issued. The annual fee for all other licenses, certificates and registrations, and QA program approvals issued during the year will not be prorated. Annual fees for these licenses, certificates and registrations, and QA program approvals will be assessed only for those licenses and approvals in effect on October 1 each fiscal year. For FY 1991, those licenses, certificates, and registrations, and QA program approvals in effect on the effective date of the final rule will be assessed an annual fee. Licenses, certificates, registrations, and approvals issued during FY 1992, for example, will be assessed an annual fee in the subsequent FY. For materials licensees, this system will reduce the NRC's administrative burden of tracking the numerous licenses, certificates, registrations, and approvals issued during the FY.

Section 171.19 Payment

This section is revised in its entirety. Paragraph (a) indicates the method of payment to be used in paying the annual fees and is consistent with the existing payment provisions for the current fee schedules in part 170. For FY 1992 through 1995, annual fees of less than \$100,000 are to be paid once a year during the first quarter of the FY as billed by the NRC because of the large number of licensees and the relatively small amount of these bills. Annual fees of \$100,000 or more will be billed and paid quarterly. For FY 1992 only, the NRC will defer the due date of the first

quarterly bills for annual fees greater than \$100,000 and total bills for annual fees less than \$100,000 until the second quarter of FY 1992.

The NRC anticipates that the first, second, and third quarterly payments for FY 1991 will have been made by operating power reactor licensees before the final rule is effective. Therefore, NRC will credit payments received for those three quarters toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill in order to recover the full amount of the revised annual fee. For those fuel cycle licensees, material licensees, and holders of certificates, registrations, and QA program approvals that are subject to the annual fees for the first time in FY 1991, the NRC will send a bill for the full amount of the annual fee to the licensee, or certificate, registration, or approval holder upon publication of the final rule. Payment is due on the effective date of the rule and interest shall accrue from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule.

Section 171.23 Enforcement

This section is amended in its entirety to indicate that submitting an inaccurate certification to the Commission with respect to qualifying as a small entity under the Regulatory Flexibility Criteria may result in (1) the suspension or revocation of any licenses held by the person and (2) punitive action pursuant to 18 U.S.C. 1001.

Section 171.25 Collection of Interest, Penalties, and Administrative Costs

This section is amended to include all annual fees assessed in accordance with §§ 171.15 and 171.16.

VI. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for this final regulation.

VII. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VIII. Regulatory Analysis

With respect to part 170, this final rule was developed pursuant to title V of the

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Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia, *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied 444 U.S. 1102 (1980). The Court held that (1) the NRC had the authority to recover the full cost of providing services to identifiable beneficiaries; (2) the NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations; (3) the NRC could charge for costs incurred in conducting environmental reviews required by NEPA; (4) the NRC properly included in the fee schedule the costs of uncontested hearings and of administrative and technical support services; (5) the NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and (6) the NRC's fees were not arbitrary or capricious.

With respect to part 171, Public Law 101-239 required the NRC to establish annual fees for regulatory services provided to its applicants and licensees that, when added to other amounts

collected, equaled 33 percent of the Commission's costs of providing those services for FY 1991. On August 17, 1990, the NRC published in the *Federal Register* (55 FR 33789) the annual fees for FY 1991 based on the Public Law. On November 5, 1990, the Congress amended the Public Law. For FYs 1991 through 1995, Public Law 101-508 requires that approximately 100 percent of the NRC budget authority be recovered. To accomplish this statutory requirement, the NRC, in accordance with 10 CFR 171.13, is publishing the final amount of the FY 1991 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. This Public Law and the Conference Report specifically state that (1) the annual fees will be based on the Commission's FY 1991 budget of \$465 million less the amounts collected from part 170 fees and the funds directly appropriated from the NWF to cover the Commission's high level waste program; (2) the annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and (3) the annual fees be assessed to those licensees the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment. Therefore, when developing the revised annual fees for operating power reactors the Commission continues to consider the various reactor vendors, the types of containment, and the location of the reactor. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

10 CFR part 171, which established annual fees for operating power reactors effective October 20, 1986, was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 109 S. Ct. 1952 (1989).

10 CFR parts 170 and 171, which established fees based on the FY 1989 budget, were also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S. Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

IX. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to

recover 100 percent of its budget authority through the assessment of user fees. This Act further requires that the NRC establish a schedule of charges that fairly and equitably allocates the aggregate amount of these charges among licensees.

This final rule establishes the new schedules of fees that are necessary to implement this Congressional mandate. The final rule results in an increase in the fees charged to all licensees, and holder of certificates, registrations, and approvals including those licensees who are classified as small entities under the Regulatory Flexibility Act. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as appendix A to this document.

X. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and, therefore, that a backfit analysis is not required for this final rule because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

10 CFR Part 71

Criminal penalties, Hazardous materials—transportation, Nuclear materials, Packaging and containers, Reporting and recordkeeping requirements.

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Intergovernmental relations, Non-payment penalties, Nuclear materials,

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Nuclear power plants and reactors, Source material, Special nuclear material, Holders of certificates, registrations, approvals, Penalties.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 52, 71, 170, and 171.

Appendix A to This Final Rule— Regulatory Flexibility Analysis for the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

Note: This appendix will not appear in the Code of Federal Regulations.

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) establishes as a principle of regulatory practice; that agencies shall endeavor to fit regulatory and informational requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in the consideration of impacts under the Regulatory Flexibility Act, the NRC has adopted size standards for determining which NRC licensees qualify as small entities (December 9, 1985; 50 FR 50241). These size standards are as follows:

(1) For all NRC licensees, except physicians in private practice and educational institutions, the size standard is \$3.5 million or less in annual gross receipts.

(2) For physicians in private practice, the size standard is \$1 million or less in annual gross receipts.

(3) For educational institutions, the size standard is divided into two categories:

(i) State or publicly supported educational institutions supported by jurisdictions with a population of 50,000 or less are defined as small entities.

(ii) Educational institutions that are not State or publicly supported and have 500 or fewer employees are small entities.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990, requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for fiscal years 1991 through 1995 by assessing license and annual fees. Thus, the NRC must collect approximately \$445 million through these fees for FY 1991 by September 30, 1991.

To comply with Public Law 101-508, the Commission proposed amendments to its fee regulations in 10 CFR parts 170 and 171. Consistent with the Conference Report accompanying the Public Law, the NRC fairly

and equitably allocated its budget costs. This resulted in the assessment of annual fees for all classes of licensees, including those classes of licensees with a substantial number of small entities.

II. Impact on Small Entities

Based on previous surveys and the comments received on the proposed fee rule revisions, NRC licensees that meet the size standard for a small entity are primarily those licensed under the agency's materials program. Therefore, this analysis will focus on the economic impact on materials licensees.

The amendments to the Commission's fee regulations would result in a substantial increase in the fees currently charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these material licensees, the NRC estimates that approximately 35 percent (about 3,000 licensees) would qualify as a small entity. Therefore, in recognition of this substantial number of small entities, the NRC requested comments from small entities on the proposed rule. Comments were specifically requested on (1) how the proposed regulations would affect each class of licensee, and (2) how the regulations could be structured to further minimize the economic impact on the licensee, but still meet the statutory mandate of Public Law 101-508.

For materials licensees, the increase in fees consists of (1) an increase of 25 percent in the license and inspection fees currently assessed under 10 CFR part 170, and (2) a new annual fee assessed under 10 CFR part 171 that ranges from \$290 to over \$10,000. A number of small entities indicated in their comments that the 25 percent increases in license and inspection fees, although not desirable, would not have a significant economic impact on them. However, many of the materials licensees commented on the negative economic impact of the new annual fee. Therefore, this regulatory flexibility analysis will concentrate on the new annual fee.

The commenters indicated the following results if the proposed annual fee was not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well logging company ("mom and pop") would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put them at an extreme disadvantage with their much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.
- Some firms would be forced to cancel their license. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and

license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in around 10 percent of the well logging licensees terminating their license immediately and approximately 25 percent terminating their license before the next annual assessment.

—Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.

—Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Although it is not clear to what extent these effects would materialize if the proposed fees are assessed, it is clear that the proposed fees would be a relatively high portion of the gross revenues of some licensees and far less a portion for large material licensees. Therefore, the NRC concludes that alternatives, in accordance with the Regulatory Flexibility Act, should be considered because of the significant impact on a substantial number of small entities.

III. Alternatives

The commenters' suggested alternatives to reduce the impact on small entities are categorized as follows:

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

The first alternative would result in the annual fee being in direct proportion to the amount of radioactivity (e.g., number of radioactive sources) possessed by the licensee, independent of whether the licensee meets the size standard for a small business. Thus, a large diversified firm that owns one source would get a reduced fee, while a small entity, whose business may depend solely on the use of radioactive materials, would pay a larger fee because it has more than one source. Thus, this alternative does not necessarily achieve the goal of the Regulatory Flexibility Act to minimize the impact on small entities. The NRC also believes that this approach would not result in a fair and equitable allocation of its generic and other costs not recovered under part 170. Therefore, this approach was rejected.

For reasons similar to those for which NRC rejected the first alternative, basing the fee on the frequency of use of the licensed radioactive source, the second alternative,

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would not necessarily reduce the cost for small entities that meet the size standards discussed earlier.

The last alternative would base fees on the size standards that the NRC has used to define small entities. This alternative would ensure that any benefits from modification of the proposed fees would apply only to small entities. Three basic options, each using the NRC size standards, were considered for modifying the annual fees imposed on small entities:

1. Exempt all small entities that meet the size standards from annual fees.
2. Require small entities to pay a fixed percent of the amount of the fee in each of the specific material license fee categories.
3. Establish a maximum fee for small entities.

Under Option 1, all small entities would be exempted from fees. This could be viewed as not being consistent with the objectives of Public Law 101-508, because small entities would not pay any of the generic costs attributable to their class of licensees. This would result in the annual fees attributable to small entities being totally paid by other NRC licensees.

Under Option 2, the small entities would pay a percent (e.g. 50 percent) of the proposed fee for each specific category of material license, regardless of how small or large the fee is. This could lead to a reduction in annual fees that are already relatively small and do not have a significant impact on a substantial number of small entities. On the other hand, for fee categories with large annual fees, the percentage of reduction may result in assessing relatively large fees for small entities licensed under those fee categories.

Option 3 would establish a maximum fee for all small entities. Under this option, a small entity would pay the smaller of the annual fee for the category or the maximum small entity fee. This alternative would strike a balance between the requirements of Public Law 101-508 and the Regulatory Flexibility Act, which is to consider and reduce, as appropriate, the impact of an agency's regulatory actions on small entities. Therefore, the NRC has adopted Option 3 as the most appropriate to reduce the impact on small entities.

IV. Maximum Fee

To implement Option 3, the NRC must establish a maximum small entity fee. The Regulatory Flexibility Act and implementing guidance do not provide specific guidance on the amount or the percent of gross receipts that should be charged to a small entity. To determine a maximum annual fee for a small entity, the NRC examined the current NRC 10 CFR part 170 license and inspection fees and Agreement State fees for those fee categories which are expected to have a substantial

number of small entities. Because these fees are currently charged to small entities, the NRC believes that these fees do not have a significant impact on them. In fact, the NRC concluded, in issuing the existing rule, that the existing materials license fees do not have a significant impact on small entities.

The maximum fees per year that are currently charged by several Agreement States and the NRC for materials license fee categories with a significant number of small entities are shown below.

	Current maximum average total fee per year
Washington.....	\$3,760
Texas.....	2,100
Illinois.....	2,000
NRC.....	1,590
Nebraska.....	1,460
New York.....	1,030
Utah.....	440

Table 1 shows the estimated total fees (part 170 plus part 171) for materials licensees, assuming maximum annual fees for small entities of \$2,000 or \$1,500 and an average number of licensing actions and inspections per year. If the maximum annual fee for small entities is established at \$2,000, the average fee per year for all of the categories would be below the approximately \$3,800 maximum fee charged by Agreement States, except for radiography, waste receipt and packaging, and broad scope medical licensees. The broad scope medical, and waste receipt and packaging licensees are primarily large entities. Therefore, with a \$2,000 maximum small entity annual fee and the average license and inspection fees, only small entities who are radiographers would pay slightly more than the current maximum Agreement State fee of approximately \$3,800. If the maximum fee is reduced by \$200 (from \$2,000 to \$1,800), then all categories of material licensees, including radiographers, would pay no more for each category than the current maximum fee of about \$3,800 if the licensee qualifies as a small entity.

By establishing the maximum annual fee for small entities at \$1,800, the annual fee for many small entities will be reduced while at the same time materials licensees, including small entities, would pay for most of the costs (\$22.3 million of the total \$27.2 million) attributable to them. For the above reasons, the NRC has established the maximum annual fee (base annual fee plus surcharge) for small entities at \$1,800 for each fee category covered by each license issued to a small entity. This will reduce the impact on many small entities. Note that the costs (\$4.9 million) not recovered from small entities would be allocated to other material licensees and to operating power reactors.

V. Summary

Comments received on the proposed rule provided additional evidence that the proposed rule would significantly impact a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirements to consider means of reducing the impact of the proposed fee on small entities. On the basis of its regulatory flexibility analysis, the NRC concludes that a maximum fee of \$1,800 would reduce the impact on small entities and, at the same time, the reduced fee would be consistent with the objectives of Public Law 101-508.

TABLE 1.—AVERAGE TOTAL SMALL ENTITY FEES PER YEAR

License fee category	Total small entity fee *	
	Max annual fee=\$2K	Max annual fee=\$1.5K
Special Nuclear Material (SNM):		
1C. Industrial Gages.....	\$1,672	\$1,672
1D. All Other SNM.....	2,506	2,006
Source Material:		
2B. Shielding.....	463	463
2C. Other Source Materials.....	2,867	2,367
Byproduct Material:		
3A. Manufacturing—Broad.....	3,560	3,060
3B. Manufacturing—Other.....	3,343	2,843
3C. Radiopharmaceuticals.....	3,207	2,707
3D. Radiopharmaceuticals—Manufacturing.....	2,677	2,177
3E. Irradiators—Self-Shield.....	1,699	1,699
3F. Irradiators—< 10,000 Ci.....	2,623	2,123
3G. Irradiators—> 10,000 Ci.....	3,840	3,340
3H. Exempt Distribution—Device Review.....	2,815	2,315
3I. Exempt Distribution—No Device Review.....	2,682	2,182
3J. Gen. License—Device Review.....	2,679	2,179
3K. Gen. License—No Device Review.....	2,708	2,208
3L. R&D—Broad.....	3,210	2,710
3M. R&D—Other.....	3,050	2,550
3N. Service License.....	2,733	2,233
3O. Radiography.....	4,050	3,550
3P. All Other Byproduct Materials.....	2,120	2,120
Waste Disposal and Processing:		
4B. Waste Receipt/Packaging.....	4,680	4,180

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TABLE 1.—AVERAGE TOTAL SMALL ENTITY FEES PER YEAR—Continued

License fee category	Total small entity fee *	
	Max annual fee=\$2K	Max annual fee=\$1.5K
4C. Waste Receipt—Prepackaged	3,216	2,716
Well Logging:		
5A. Well Logging	3,207	2,707
Nuclear Laundry:		
6A. Nuclear Laundry	3,030	2,530
Human Use of Byproduct, Source, or SNM:		
7A. Teletherapy	3,788	3,288
7B. Medical—Broad	4,360	3,860
7C. Medical Other	3,130	2,630
Civil Defense:		
8A. Civil Defense	1,789	1,789
Device, Product, or Sealed Source Safety Evaluation:		
9A. Device/Product—Broad	3,200	2,700
9B. Device/Product—Other	2,580	2,080
9C. Sealed Sources—Broad	1,530	1,530
9D. Sealed Sources—Other	770	770

* Based on average 10 CFR part 170 fees plus maximum annual fee.

56 FR 37828
Published 8/9/91
Effective 8/9/91

10 CFR Parts 52, 71, 170, and 171

RIN 3150-AD87

Revision of Fee Schedules; 100% Fee Recovery, Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule, correction.

SUMMARY: This document corrects a final rule appearing in the **Federal Register** on July 10, 1991 (56 FR 31472), that amended the regulations governing the licensing, inspection, and annual fees charged to Nuclear Regulatory Commission licensees. This action is necessary to correct several errors that occurred in final document preparation and printing.

EFFECTIVE DATE: August 9, 1991.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-4301.

1. On page 31486, first column, first paragraph under item 3, fourth line, "\$28.4 million" should read "\$33.3 million."

2. On page 31486, second column, third paragraph under item b, first line, "\$28.4 million" should read "\$33.3 million."

3. On page 31487, first column, in the last full paragraph, the introductory phrase should appear in italics as follows:

"Activities and budgeted costs not currently assessed 10 CFR part 170 licensing and inspection fees based on Commission policy."

4. On page 31492, table IV, the direct FTE under the program element total for the line item "Decommissioning" which reads "144" should be revised to read "14.4."

5. On page 31492, the numbers in the entries directly following table IV were not properly aligned. These numbers should have appeared as follows:

\$362.8 million ²
—71.9 million
\$290.9 million

6. On page 31495, the headings to table VI should be corrected to appear in the same manner as the headings for table VII. Specific changes are as follows:

a. The word "Total" should appear over the first and second columns entitled "Program support \$K" and "FTE."

b. The words "Allocated to fuel facility" should appear over the third and fourth columns.

c. The subheading for column three should read "Program Support \$K."

d. The subheading for column four should read "FTE."

7. On page 31495, the numbers in the entries directly following table VI were not properly aligned. These numbers should have appeared as follows:

\$13.3 million ²
—2.7 million
\$10.6 million

8. On page 31495, in table VII, dollar signs should appear before the totals of \$3,372, \$1,973, \$3,034, \$4,183, and \$27.2.

9. On page 31496, in the table at the top of the page, dollar signs should appear before the subtotals \$936, \$3,222, \$4,158, and \$1,080 and the totals \$3,186, \$7,452, and \$10,638.

10. On page 31504, § 170.31, fee category 15, the introductory text of item 15c should be revised to read:

"c. All other export/import licenses/ approvals."

11. On page 31506, § 171.15(d), in the second line, the word "and" should be removed. As correctly revised § 171.15(d) reads as follows:

"(d) The FY 1991 part 171 annual fees for operating power reactors are as follows:"

Dated at Rockville, Maryland, this 2d day of August 1991.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

57 FR 13625
Published 4/17/92
Effective 5/18/92

10 CFR Parts 170 and 171

RIN 3150-AE13

Limited Revision of Fee Schedules

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to make two limited changes to its assessment of license and annual fees. The final rule assesses license fees, which are based on the full-cost method, quarterly instead of semiannually and establishes a lower tier small entity annual fee for those licensees that are small entities with relatively low annual gross receipts or supporting populations. These final amendments are intended to improve NRC financial management and further mitigate the impact of the annual fee on small licensees with relatively low annual gross receipts or supporting populations.

EFFECTIVE DATE: May 18, 1992.

FOR FURTHER INFORMATION CONTACT:

C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-492-4301.

SUPPLEMENTARY INFORMATION:

I. Background.

II. Responses to Comments.

III. Final Action—Changes Included In Final Rule.

IV. Section-by-Section Analysis.

V. Environmental Impact: Categorical Exclusion.

VI. Paperwork Reduction Act Statement.

VII. Regulatory Analysis.

VIII. Regulatory Flexibility Certification/ Analysis.

IX. Backfit Analysis.

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I. Background

The NRC assesses two types of fees:

(1) License and inspection fees are assessed under 10 CFR part 170 to recover the costs to the NRC of providing individual services (e.g., inspections and reviews of license applications) to specific applicants for, and holders of, NRC licenses and approvals.

(2) Annual fees are assessed under 10 CFR part 171 to recover NRC generic and other regulatory costs not recovered under 10 CFR part 170.

On July 10, 1991 (56 FR 31472), the Commission published a final rule that revised the fee schedules contained in 10 CFR parts 170 and 171. These revisions were necessary to comply with the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). This Public Law requires that the NRC recover approximately 100 percent of its budget authority for FY 1991 through 1995 from the assessment of license and annual fees. To reduce the economic impact of the annual fees on small entities, the NRC in accordance with the Regulatory Flexibility Act of 1980 (RFA) established a maximum annual fee of \$1,800 per licensed category for those licensees that qualify as small entities under the NRC's size standards.

The NRC adopted size standards for determining which NRC licensees qualify as small entities on December 9, 1985 (50 FR 50241), and clarified these size standards on November 6, 1991 (56 FR 56672). The NRC size standards for small entities are as follows:

1. A small business is a business with annual receipts of \$3.5 million or less except private practice physicians for which the standard is annual receipts of \$1 million or less.

2. A small organization is a not-for-profit organization which is independently owned and operated and has annual receipts of \$3.5 million or less.

3. Small governmental jurisdictions are governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000.

4. A small educational institution is one that is (1) supported by a qualifying small governmental jurisdiction, or (2) one that is not state or publicly supported and has 500 employees or less.

The Commission stated clearly in establishing these size standards that the term "annual receipts" is used in the same manner as used by the Small Business Administration (SBA). In 13 CFR 121.402(b)(2) annual receipts are defined " * * * to include all revenue in whatever form received or accrued from whatever sources * * * " (54 FR 52647; December 21, 1989).

On January 9, 1992 (57 FR 847), the Commission published for comment proposed limited changes to its fee regulations in 10 CFR parts 170 and 171. The proposed change to part 170 would reduce the interval between the time the NRC provides a specific service and the time NRC issues a bill for that service. The proposed change would result in all licensing and inspection fees being billed at least quarterly. The proposed change to part 171 would further reduce the impact of the annual fees on some small entities.

The NRC continued the maximum annual fee of \$1,800 per licensed category established July 10, 1991 (56 FR 31472), for those materials licensees who could qualify as a small entity under the NRC's size standards. In addition, the NRC proposed a lower tier small entity fee of \$400 per licensed category for small businesses and nonprofit organizations with relatively low gross annual receipts of less than \$250,000 and small governmental jurisdictions with a relatively low population of less than 20,000. The Commission noted that this decision balanced the objective of OBRA-90 and RFA by reducing, but not eliminating, the impact of the annual fee on small entities.

The NRC emphasized that the scope of the proposed rule was narrowly focused. The proposed amendments were limited to the questions of (1) whether and how the part 170 license fee billing interval should be modified and (2) whether and how to further alleviate the impact of the part 171 annual fees on those materials licensees that meet the existing NRC size standards for a small entity. Thus, the Commission stated in the proposed rule that it would consider only those comments which addressed these two questions. The Commission also noted that it was not seeking, and would not consider, comments (1) relating to a change in the NRC's existing size standards under which a licensee could qualify as a small entity for annual fee purposes, (2) suggesting

changes in the structure of the specific fee categories, or (3) suggesting changes in the methods for allocating costs and calculating the annual fees.

The agency workpapers that support the final changes to 10 CFR parts 170 and 171 are available in the Public Document Room at 2120 L Street, NW., Washington, DC, in the lower level of the Gelman Building.

II. Responses to Comments

Thirty-five public comments were received by the close of the comment period on February 10, 1992. The Commission has received and evaluated an additional seventeen comments which were received by close of business February 28, 1992, for a total of 52 public comments.

Of these 52 comments, 36 were from persons concerned with other than power reactors (including Federal and local government agencies), 15 were from utility licensees and their representatives and one from a Congressman. Copies of all comment letters are available for inspection at the Public Document Room.

There were several comments that were not within the limited scope of the proposed rule and, therefore, were not evaluated for the purpose of issuing this final rule. Briefly, these commenters suggested that—

(1) The part 171 annual fees for well loggers be eliminated and that the part 170 licensing and inspection fees be returned to 1986 levels;

(2) The proposed revisions do not solve the problems faced by medical licensees;

(3) The NRC consider taking possible alternative actions, e.g., eliminating the Regional offices and consolidating the personnel in the Washington, DC Metropolitan area, immediately instituting a hiring freeze and eliminate all unnecessary personnel, eliminate or defer lower priority research and generic rulemaking activity, etc., rather than changing the existing fee structure;

(4) The NRC assess fees based on the size of the company, the number of sources or amount or type of material possessed under the license and the frequency of use of the material; and

(5) The NRC make Congress aware of the unanticipated and undesirable impact of 100 percent fee recovery.

Many of the comments which were considered were similar in nature. For evaluation purposes, these comments have been grouped, as appropriate, and addressed in the context of the narrow focus of the rule.

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A. Modification to 10 CFR Part 170 License Fee Billing Interval

1. *Comment.* Fifteen commenters addressed the proposed change to the part 170 license fee billing interval from semiannually to quarterly. Except for one, all of the fifteen commenters supported the proposed change. Most commenters indicated that the change will provide more rapid and valuable feedback, will permit licensees to more readily assess and budget for costs incurred by the NRC for licensing activities, and will provide more timely information on which to make business decisions. One commenter, however, preferred the existing semiannual interval for billing part 170 licensing fees and indicated that the company could make better use of financial resources. Another commenter indicated that if the change to the billing interval were made, it should be made effective for FY 1993 instead of FY 1992 because budgets for FY 1992 have already been established and are based on the semiannual cycle.

Response. Given the support by the commenters and the improvement to NRC financial management, the Commission is changing the billing interval for part 170 license fees from semiannually to quarterly. The Commission does not believe that the change needs to be deferred until FY 1993 because this change should affect only the timing of the bills and not the total amount to be paid from FY 1992 budgets. Therefore, the change will become effective 30 days after publication of the final rule.

B. Modification to 10 CFR Part 171 Annual Fees for Small Entities

The comments on the modification to the small entity annual fee ranged from urging adoption of the proposed change to opposing the proposal. Some commenters indicated that the Commission, while taking a step in the right direction, had not gone far enough to alleviate the economic impact of the annual fees on small entities. Other commenters indicated that the Commission had gone too far in proposing a lower tier small entity fee. Thus, the commenters raise two fundamental questions. First, should the Commission adopt a lower tier small entity fee? If the answer to this question is yes, then the second question is should the Commission modify the proposed lower tier proposal in the proposed rule? The comments, evaluation, and Commission decision concerning these questions are discussed below.

Should the Impact on Small Entities Be Further Reduced?

1. *Comment.* Ten commenters supported the proposed change to establish a lower tier small entity fee of \$400 for FY 1992. Another seven commenters also supported the proposed changes even though they believed additional reductions should be made. These commenters indicated that the change is reasonable, appropriate, and necessary to keep small businesses operating and people employed. These commenters indicated that without the reduction, it would not be cost effective to continue to operate. In addition, commenters indicated that the change would enable companies to remain competitive, would draw a distinction between "Mom and Pop" type operations with relatively low gross annual receipts and larger companies with receipts of up to \$3.5 million, and would permit "micro" businesses to continue to operate.

2. *Comment.* Sixteen commenters opposed the proposed change in the small entity annual fee. These commenters indicated that, while they were sympathetic with the plight of small entities and endorsed the concept of some program for relief to prevent small licensees from going out of business, they believed that other larger licensees, primarily utilities, should not be required to pay for the shortfall through an additional subsidy. Commenters argued that this is yet another example of the "deep pockets" argument applied by the NRC without recognition of (1) the unfairness of forcing one entity to pay for the services provided another; and (2) the potential impact of the proposed action, for example, the payment of the additional fees (estimated by the commenters at \$50,000 per operating reactor) from funds budgeted for plant improvement programs or from shareholder equity, thus affecting the financial position of the licensee. The commenters who opposed the proposed change noted that NRC research and generic regulatory activities associated with commercial applications of nuclear gauges, radiopharmaceuticals, and radiography, for example, are clearly linked to the associated categories of materials licensees. Therefore, these commenters argue, any costs associated with those NRC activities should be recovered from those licensees. These commenters indicate that to do otherwise is unfair and a violation of the Congressional direction that annual charges be fairly and equitably allocated. One commenter argued that if an NRC license is

essential to a company and the NRC is providing benefits to the company commensurate with the annual fees, then fees equal to or greater than the current small entity fee of \$1,800 are not unreasonable, for example, the annual fee of \$1,800 for businesses with gross annual receipts of \$200,000 is less than one percent of the receipts. In addition, the commenters indicate that the current fee structure provides an adequate balance between OBRA-90 and RFA and that changing the fee structure to benefit one group of licensees at the expense of another moves away from the definitively recognized balance achieved in the original rulemaking. One commenter indicated that any restructuring of fees should not be put into effect until January 1, 1993, or later.

Response. After considering these comments for and against the proposed rule, the Commission has decided to further reduce the impact of the annual fees on certain licensees who qualify as small entities under the NRC size standards. As indicated by these comments, any reduction to the annual fees for one group of licensees results in increased annual fees for another group in order to meet the objectives of OBRA-90 to recover 100 percent of the budget authority. Therefore, the fee reduction for small entities may be perceived as unfair by those licensees whose fees would increase. However the RFA requires the NRC to consider alternatives to minimize the significant economic impact on small entities that it regulates.

As indicated by the commenters, the impact of the existing annual fee on small entities with relatively low gross receipts or a relatively low population makes it difficult, if not impossible, for them to continue to operate. As indicated in the proposed rule, the Commission has previously received written and oral comments from small materials licensees about the impact of the part 171 annual fees. Clearly, some of the over 1,000 termination requests received by the NRC since the revised fees were implemented represent these relatively small entities. Members of Congress, in many of the more than 100 letters the NRC has received from them since the final rule was published, have expressed concern about the size of the annual fees and their economic impact on small entities. As indicated by this discussion, the July 10, 1991, final rule has negatively impacted some small licensees. Therefore, consistent with the RFA, the Commission believes further reducing the annual fee for those small licensees who are probably impacted

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the most by the annual fee is appropriate.

Should the Proposed Lower Tier Approach and Fee Be Modified?

1. *Comment.* Several comments were received indicating that while NRC was taking a step in the right direction in establishing a lower tier small entity fee of \$400, the proposal did not go far enough in alleviating the economic impact of the annual fees on small entities. Commenters indicated that even more could be done to reduce the burden on small businesses without violating the Commission's statutory mandate. These commenters suggested that the NRC extend the tiering process to include all licensees who could qualify as a small entity. Under such a plan, commenters indicate that the NRC would establish additional tiers or levels of fees. Other comments suggested that the \$400 should be reduced. One comment suggested that the rule establish for companies with gross annual receipts of less than \$50,000 a lower tier small entity fee of either \$100 a year for the license or, in the alternative, the license be exempt from fees. Other commenters suggested that NRC adopt the \$400 fee for gross annual receipts under \$250,000 but establish a sliding scale or additional fees of \$800, \$1,200, and \$1,600, for gross annual receipts of \$500,000, \$750,000, and \$1 million, respectively. Small governmental jurisdictions also commented that additional tiers or levels of fees be established to reflect different levels of population between 20,000 and 50,000. Commenters argued that this type of fee schedule would more equitably distribute the burden on small businesses based on the licensee's ability to pay.

2. *Comment.* Several Commenters, however, believe that the proposed rule has gone too far and suggested that the NRC increase the small entity fee. These Commenters suggested that the NRC raise the current maximum annual fee of \$1,800, and/or raise the \$400 proposed lower tier small entity fee in order to reduce the cost burden for larger licensees. Another commenter suggested that the lower tier small entity fee be based on reducing the \$1,800 fee by only 30 or 50 percent instead of by 75 percent which was used to determine the proposed fee of \$400.

Response. After reviewing and evaluating these comments, the Commission has established one additional lower tier, small entity annual fee of \$400 per licensed category. While this change does not eliminate the impact of the fees on small entities, it substantially reduces the impact for

those licensees with relatively low gross annual receipts of less than \$250,000 and for small governmental jurisdictions with a relatively low population of less than 20,000. At the same time, this change does not substantially increase the amount of fees that large entities would be required to pay to subsidize the small entities. In response to comments that the Commission has gone too far in shifting cost to the larger licensees, the Commission notes that the amount of small entity subsidy under the proposed rule for FY 1992 is approximately \$6 million as compared to the \$5 million assumed in the FY 1991 final rule. With regard to the comments that the Commission has not gone far enough in reducing the impact on small entities, the Commission notes that, based on NRC, Department of Commerce, and National Association of Counties data, approximately 50 percent of small businesses and governmental jurisdictions would be eligible for a further reduction of the impact of the annual fees.

Any reduction in fees for small entities must be paid by other NRC licensees. Therefore, consistent with the Commission's goal of maintaining a reasonable balance between the OBRA-90 and the RFA, the Commission does not believe any other reductions to the fees should be made.

In summary, the Commission believes that this change to the small entity fees will result in a regulation that maintains a reasonable balance between the objectives of OBRA-90 and the RFA and is consistent with the requirements of these two laws.

Other Comments

Several other comments not directly related to whether to further reduce or modify the impact on small entities are discussed below.

1. *Comment.* A few commenters suggested that the lower tier small entity fee of \$400, if implemented for FY 1992, be made retroactive to FY 1991 because the \$400 fee would be below the annual fee levels paid in FY 1991. This is necessary, one commenter argues, because of the confusion surrounding the implementation of the initial materials annual fees. The fees, which came late in FY 1991, left many licensees at a loss as to how to pass these increases on to customers without losing business. Other commenters argued that they should either be given refunds for the difference between what was paid in FY 1991 and the revised \$400 fee or be given a credit toward the FY 1992 license fee based on the proposed \$400 fee. One commenter

asked whether or not a license that was terminated within the window of opportunity provided by the NRC in FY 1991 could be reinstated by paying the proposed \$400 lower tier small entity fee. Similarly, if the company applied for a new license, accompanied by the proper Part 170 application fee, would the applicant be subject to the FY 1991 annual fee?

Response. The recommended modification to the annual fees may not be made retroactive to FY 1991 because this would result in the NRC not assessing approximately 100 percent of its FY 1991 budget authority, which would be inconsistent with the requirements of OBRA-90. Therefore, the annual fees assessed for FY 1991 will not be changed. The \$400 lower tier small entity fee will apply to FY 1992 and subsequent years unless changed by rulemaking. If a licensee elected to terminate its license within the time permitted by the NRC and thereby avoided payment of the FY 1991 annual fee but now wishes to have the license reinstated, the licensee must file a new application with the NRC, accompanied by the appropriate application fee, as required by 10 CFR part 170, for the activities requested in the new application. Once a new license is issued, the license will become subject to the renewal, amendment, and inspection fees of 10 CFR part 170 and the annual fees in 10 CFR part 171. If the NRC terminated a license within the period allowed by the NRC and subsequently issued a new license after October 1, 1991, the NRC will not assess the licensee an annual fee for FY 1991. Licensees who wish to withdraw termination requests from the NRC that are pending termination on the effective date of this final rule and continue their license(s), may do so upon payment of the FY 1991 annual fee. The licensee will also be subject to the FY 1992 annual fees.

2. *Comment.* Several comments were received indicating that the term "gross annual receipts" should be redefined and limited to only the income derived from activities authorized by the license (e.g., nuclear medicine only) rather than receipts derived from all company activities. A group medical practice with total gross annual receipts of approximately \$2 million suggested that the annual fee be based on the receipts generated by only the nuclear activities authorized by the license. They indicate that 21 percent of the group practice income is from the office practice only and less than 10 percent of the office income is derived from specific nuclear medicine procedures. By considering the

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entire private practice gross receipts in establishing the level for the small entity fee, commenters indicated that NRC is not considering the economic realities of a very small program, in particular small hospitals who may be forced to discontinue services for rural patients. Commenters argued that to include all gross annual receipts is not fair if the greater portion of that income has nothing to do with those individuals or departments using the nuclear license.

Response. The Commission disagrees with this proposal because it would result in a further subsidy from the larger entities for costs not directly related to them. This proposal would also result in NRC licensees subsidizing the nuclear portion of an organization's business, when the organization itself is not willing to use its non-nuclear revenue to subsidize its nuclear operations. The Commission does not believe that this would be appropriate. As previously indicated in Section I, Background, in applying the gross receipts criteria for determining whether or not a company qualifies as a small entity under the existing NRC size standards, the NRC used the term "receipts" as defined and used by the Small Business Administration (SBA) in the SBA size standards. SBA defines receipts " * * * to include all revenues in whatever form received or accrued from whatever source * * * "

III. Final Action—Changes Included In Final Rule

The following discussion addresses the final limited changes to 10 CFR parts 170 and 171. Most of these changes were presented in the proposed rule published on January 9, 1992 (57 FR 847).

A. Amendments to 10 CFR Part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

The NRC is making one change to 10 CFR 170.12. This change would amend paragraphs (b)(2), (c)(2), (d)(2), (e)(1), (f), and (i) of § 170.12 to reduce the billing interval from semiannually to quarterly for reactor and certain materials licensing actions.

B. Amendments to 10 CFR Part 171: Annual Fees for Reactor Operating Licenses and Fuel Cycle Licensees, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed By NRC

The NRC has changed this regulation as follows:

1. The NRC is amending § 171.16 to further reduce the impact on small entities with relatively low gross annual

receipts. Although the NRC will continue the maximum annual fee of \$1,800 per licensed category for certain small entities for FY 1992, the NRC is adding a second, lower tier small entity fee of \$400 per licensed category. Small businesses and non-profit organizations with gross annual receipts of less than \$250,000 and small governmental jurisdictions with populations of less than 20,000 will qualify for the lower tier small entity fee. The basis for this change is discussed in detail in the Regulatory Flexibility Analysis included as Appendix A to this final rule.

The Commission believes that by defining relatively small gross annual receipts as less than \$250,000, a significant number of small entities (approximately 50%) are eligible for a further reduction of the impact of the annual fees. The Commission also believes that by defining a relatively small governmental jurisdiction as a population of less than 20,000, approximately 50 percent of the small governmental jurisdictions are eligible for a further reduction in fees. These annual gross receipt and population levels help ensure that those licensees who probably would be impacted the most by the annual fee would pay the lower fee. The Commission believes that the \$400 fee per licensed category will ensure that the lower tier small entities would receive a reduction (e.g., 75% for qualifying nuclear gauge licensees) substantial enough to mitigate any severe impact resulting from the annual fee. In addition, the amount of the small entity costs borne by other licensees are equivalent to the \$5.0 million estimated in the current rule, increased by 20% to account for the FY 1992 budget increase and the reduction in the number of material licensees due to license terminations.

In accordance with § 171.13, the NRC will continue to issue quarterly bills for the annual fees, for annual fees greater than \$100,000, which are based on the current 10 CFR part 171 annual fee schedule (56 FR 31506; July 10, 1991). In April 1992, the NRC plans to publish a proposed rule that would update the part 171 annual fees and the part 170 hourly rate and flat fees based on the NRC's FY 1992 appropriation.

IV. Section-By-Section Analysis

The following analysis of those sections affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, U.S. Code of Federal Regulations.

Part 170

Section 170.12 Payment of Fees

Paragraphs (b)(2), (c)(2), (d)(2), (e)(1), (f), and (i) of this section are amended by changing the interval at which the NRC bills applicants and licensees from six months to quarterly. This change results in NRC billing fees for licensing and approval actions, based on the full cost method (i.e., professional staff hours and contractual costs), at quarterly intervals rather than every six months. This final amendment is applicable primarily to reactors and fuel cycle facilities and will result in all part 170 full cost fees being billed at least quarterly. Good financial management practice requires that fee billings be made as promptly as is possible. Licensees commenting on the proposed rule have supported the billing interval change, indicating that the change will provide more rapid and valuable feedback with the NRC, will permit licensees to more readily assess and budget for costs incurred for licensing activities, and will provide more timely information on which to make business decisions. The Commission, therefore, will bill license fees, based on the full cost method, at quarterly intervals, for example, December, March, June, and September.

Part 171

Section 171.16 Annual Fees

Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government agencies licensed by the NRC.

The introduction to paragraph (c) is amended (1) to provide for the continuation, in FY 1992, of a maximum annual fee of \$1,800 per licensed category for those NRC licensees that meet NRC small entity size standards and (2) to establish a lower tier small entity annual fee of \$400 per licensed category for those small businesses and non-profit organizations with gross annual receipts of less than \$250,000 and for those small governmental jurisdictions with a population of less than 20,000. Data from an NRC survey of materials licensees and the Department of Commerce industry census show that about 50 percent of small businesses with gross annual receipts of less than \$3.5 million have gross annual receipts of less than \$250,000. Thus, the Commission is defining a lower tier of small businesses with relatively low gross annual receipts as those with gross annual receipts of less than \$250,000. Under this definition, the Commission estimates that a significant

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number of small entities would qualify for the further reduction of the annual fee. The eligibility criterion also helps ensure that those small businesses who would probably be impacted the most by the annual fee pay the lower fee.

The Commission has used a similar approach in establishing a reduced annual fee for the small governmental jurisdiction standard of populations of less than 50,000. Data provided by the National Association of Counties show that about 50 percent of the counties located in non-Agreement States have a population of less than 20,000. Therefore, the Commission is establishing a lower tier level of less than 20,000 population in order for a small governmental entity to qualify for the reduced annual fee of \$400 per licensed category. This action ensures that at least 50 percent of the cities, towns, townships, villages, school districts, and other special districts would also receive the benefit of a reduced annual fee because these jurisdictions are typically smaller than counties.

The Commission has not changed its basic definition of a small entity, that is, gross annual receipts of \$3.5 million or less for businesses and nonprofit organizations; private practice physicians with gross annual receipts of \$1 million or less, and small governmental jurisdictions with a population of less than 50,000. The Commission notes that these standards apply to the licensee, not individual authorized users listed in the license, and that a subsidiary of a large entity does not qualify as a small entity under the NRC's size standards.

Under this final rule, these three groups of NRC licensees would qualify for one of the two reduced annual fees depending on the level of the annual gross receipts or the respective population. A licensee with gross annual receipts of \$1.5 million will pay a maximum small entity annual fee of \$1,800 per licensed category. A licensee with annual gross receipts of \$200,000 will qualify for the lower tier small entity fee of \$400 per licensed category. Private practice physicians whose annual gross receipts are from \$250,000 to \$1 million will pay the maximum annual fee of \$1,800 per licensed category, while those private practice physicians with annual gross receipts of less than \$250,000 will pay the reduced annual fee of \$400 per licensed category. Licenses issued to city or county governments, for example, with a population of less than 20,000 will qualify for the lower tier small entity fee of \$400 per licensed category. The Commission believes that this two-

tiered approach will further alleviate the impact of fees on small entities with relatively low annual gross receipts and on smaller governmental jurisdictions.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VII. Regulatory Analysis

The Omnibus Budget Reconciliation Act of 1990 (Public Law 101-508) requires the NRC to recover approximately 100 percent of its budget authority for FY 1991 and the succeeding four years through the assessment of license and annual fees. With respect to part 170, this final rule was developed to title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. The limited change to part 170 revises the fee billing interval to quarterly for those license fees that are currently billed every six months. This will result in all part 170 fees being billed at least quarterly. With respect to the limited changes to part 171, the Commission is adjusting the maximum annual fee assessed to materials licensees who qualify as a small entity under the NRC's size standards. Although the Commission will continue the \$1,800 maximum annual fee per licensed category for small entities, it is establishing a lower tier annual fee of \$400 per licensed category for those small materials entities that have annual gross receipts of less than \$250,000 and for those small governmental jurisdictions with a population of less than 20,000. This constitutes the regulatory analysis for this final rule.

VIII. Regulatory Flexibility Certification/Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover 100 percent of its budget authority through the assessment of license and annual fees. This Act further requires that the NRC establish a schedule of charges that fairly and equitably allocates the aggregate

amount of these charges among licensees.

The NRC is amending its regulations governing the assessment of license and annual fees to make two limited revisions. The limited changes to 10 CFR part 170 assess license fees, which are based on the full cost method, quarterly instead of semiannually. This change affects only the frequency of the billings and not the amount of the fees to be billed. In addition, this change applies primarily to reactors and large fuel cycle facilities that are not small entities. Therefore, the Commission certifies that the change to 10 CFR part 170 does not have a significant economic impact on a substantial number of small entities.

This final rule continues the existing maximum annual fee of \$1,800 per licensed category for small entities in 10 CFR part 171 of the Commission's regulations. The final rule establishes a lower tier small entity annual fee of \$400 per licensed category for those NRC materials licensees who can qualify as a small entity under the existing NRC's size standards and whose annual gross receipts are less than \$250,000 or for those small governmental jurisdictions who have a population of less than 20,000. This reduced annual fee is established one level or tier below the current \$1,800 maximum annual fee per licensed category. The basis for this final amendment to 10 CFR part 171 is discussed in detail in the regulatory flexibility analysis which is included as appendix A to this final rule. The regulatory flexibility analysis has been prepared in accordance with 5 U.S.C. 604. Consistent with the requirements of the Regulatory Flexibility Act, this change to 10 CFR part 171 further alleviates the impact of future annual fees on the smallest materials licensees.

IX. Backfit Analysis

The NRC has determined that the backfit rule 10 CFR 50.109 does not apply to this final rule and, therefore, that a backfit analysis is not required for this final rule because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct, or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export

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licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material, Holders of certificates, registrations, or approvals, Penalties.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 170 and 171.

Appendix A to This Final Rule Regulatory Flexibility Analysis for the Limited Amendment to 10 CFR Part 171 (Annual Fees)

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act, the NRC adopted size standards for determining which NRC licensees qualify as small entities on December 9, 1985 (50 FR 50241). These size standards were clarified November 6, 1991 (56 FR 56672). The NRC size standards are as follows:

(1) A small business is a business with annual receipts of \$3.5 million or less except private practice physicians for which the standard is annual receipts of \$1 million or less.

(2) A small organization is a not-for-profit organization which is independently owned and operated and has annual receipts of \$3.5 million or less.

(3) Small governmental jurisdictions are governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000.

(4) A small educational institution is one that is (1) supported by a qualifying small governmental jurisdiction, or (2) one that is not state or publicly supported and has 500 employees or less.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990, (OBRA-90) requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. For FY 1991 the amount to be collected was approximately \$445 million, and for FY 1992, the amount to be collected is approximately \$493 million.

To comply with OBRA-90, the Commission proposed amendments to its fee regulations in 10 CFR parts 170 and 171 on April 12, 1991 (56 FR 14870). On the basis of a careful evaluation of over 400 comments, the Commission issued a final rule on July 10, 1991 (56 FR 31472). Consistent with the Conference Report accompanying the Public Law, the NRC fairly and equitably allocated its budget costs. This resulted in the assessment of annual fees for all classes of licensees, including those classes of licensees with a substantial number of small entities.

II. Impact on Small Entities

The comments received on the proposed FY 1991 fee rule revisions, and small entity certifications received in response to the final FY 1991 fee rule indicate that NRC licensees that qualify as small entities under the NRC's size standards are primarily those licensed under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these material licensees, the NRC estimates that about 25 percent (approximately 2,000 licensees) would qualify as a small entity. Therefore, in recognition of this substantial number of small entities, the NRC requested comments from small entities on the proposed FY 1991 rule. Comments were specifically requested on (1) how the proposed regulations would affect each class of licensee and (2) how the regulations could be structured to further minimize the economic impact on the licensee, but still meet the statutory mandate of OBRA-90.

For materials licensees, the increase in fees assessed in FY 1991 consisted of (1) an increase of 25 percent in the license and inspection fees assessed under 10 CFR Part 170 and (2) a new annual fee assessed under 10 CFR Part 171 that ranges from \$290 to over \$10,000. A number of small entities indicated that the 25 percent increase in license and inspection fees, although not desirable, would not have a significant economic impact on them. However, many other materials licensees commented that the new annual fee would have a negative economic impact on them. Therefore, the regulatory flexibility analysis prepared for the July 10, 1991, final rule, as well as this

regulatory flexibility analysis, concentrates on the new annual fee.

The commenters indicated the following results if the annual fees proposed on April 12, 1991, were not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put them at an extreme disadvantage with their much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.

- Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in around 10 percent of the well logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.

- Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.

- Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Although it was not clear to what extent these impacts would materialize at the time the July 10, 1991, final rule was promulgated, it was clear that the proposed annual fees would be a relatively high portion of the gross revenues of some licensees and far less of a portion for other larger material

licensees. After the final rule was published, approximately 1,000 license, approval, and registration terminations were requested. Although some of these terminations were requested because the license was no longer needed, indications are that other termination requests were due to the economic impact of the fees.

The NRC continues to receive written and oral comments from small materials licensees. These comments indicate that the \$3.5 million threshold for small entities is not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

Members of Congress, in many of the more than 100 Congressional letters the NRC has received from them since the July 10, 1991, final rule was published, have expressed concern about the size of the NRC annual fees and their economic impact on small entities. Some of these letters have suggested that the Commission should act to further reduce the economic impact on those licensees who conduct limited operations. The Small Business Administration (SBA), while commending the Commission for complying with and using the RFA in the final rulemaking, suggested that the Commission should act to further alleviate the impact of the fees on small businesses. The American Nuclear Society (ANS) also expressed concern about the impact of the annual fees on small entities and suggested that the Commission examine alternatives to further reduce the impacts.

Therefore, the NRC concludes that it should consider additional alternatives, in accordance with the RFA because of the continuing significant impact of the annual fees on a substantial number of small entities.

III. Alternatives

Commenters on the proposed rule published April 12, 1991, and comments received subsequent to publication of the final rule on July 10, 1991, suggested alternatives to reduce the impact on small entities. These comments are categorized as follows:

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).

- Base fees on the NRC size standards for small entities.

The first alternative would result in the annual fee being in direct proportion to the amount of radioactivity (e.g., number of radioactive sources) possessed by the licensee, independent of whether the licensee meets the size standard for a small business. Thus, a large diversified firm that owns one source would get a reduced fee, while a small entity, whose business may depend solely on the use of radioactive materials, would pay a larger fee because it has more than one source. Thus, this alternative does not necessarily achieve the goal of the RFA to minimize the impact on small entities. The NRC also believes that this approach would not result in a fair and equitable allocation of its generic and other costs not recovered under 10 CFR part 170. Therefore, the NRC rejected this approach.

For similar reasons, basing the fee on the frequency of use of the licensed radioactive source, the second suggested alternative, would not necessarily reduce the cost for small entities that meet the size standards discussed earlier. Therefore, the NRC also rejected this approach.

The last alternative would base fees on the size standards that the NRC has used to define small entities. This alternative would ensure that any benefits from modifying the proposed fees would apply only to small entities. Three basic options, each using the NRC size standards, were considered for modifying the annual fees imposed on small entities:

1. Exempt all small entities that meet the size standards from annual fees.
2. Require small entities to pay a fixed percent of the amount of the fee in each of the specific material license fee categories.
3. Establish a maximum fee for small entities.

Under Option 1, all small entities would be exempted from fees. However, because small entities would not pay any of the generic costs attributable to their class of licensees this option could be viewed as inconsistent with the objectives of OBRA-90. Under this option, all the annual fees attributable to small entities would be paid by other NRC licensees.

Under Option 2, small entities would pay a percentage (e.g., 50 percent) of the proposed fee for each specific category of material license, regardless of how small or large the fee is. This option could result in a reduction in annual fees that are already relatively small and that do not have a significant impact on

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a substantial number of small entities. However, for those fee categories assessed large annual fees, the percentage of reduction may result in assessing small entities licensed under those fee categories relatively large annual fees.

Option 3 would establish a maximum fee for all small entities. Under this option, a small entity would pay either the smaller of the annual fee for the category or the maximum small entity fee. This alternative strikes a balance between the requirements of OBRA-90 and the RFA, which are to consider and reduce, as appropriate, the impact of an agency's regulatory actions on small entities. Therefore, the NRC has adopted Option 3 as the most appropriate to reduce the impact on small entities.

IV. Maximum Fee

To implement Option 3, the NRC established a maximum annual fee for small entities. The RFA and implementing guidance do not provide specific guidelines on the amount or the percent of gross receipts that should be charged to a small entity. To determine a maximum annual fee for a small entity, the NRC examined the NRC 10 CFR part 170 license and inspection fees established in 1991 and the 1991 Agreement State fees for those fee categories that are expected to have a substantial number of small entities. Because these fees have been charged to small entities, the NRC believes that these fees do not have a significant impact on them. In fact, the NRC concluded, in issuing the July 10, 1991, final rule, that the existing materials license and inspection fees do not have a significant impact on small entities.

The maximum fees per year charged in 1991 by several Agreement States and by the NRC for materials license fee categories with a significant number of small entities are shown below.

	1991 Maximum average total fee per year
Washington.....	\$3,760
Texas.....	2,100
Illinois.....	2,000
NRC.....	1,590
Nebraska.....	1,460
New York.....	1,030
Utah.....	440

Table 1 shows the estimated total fees (Part 170 plus Part 171) for materials licensees, assuming maximum annual fees for small entities of \$2,000 or \$1,500 and an average number of licensing actions and inspections per year. If the

maximum annual fee for small entities is established at \$2,000, the average fee per year for all of the categories would be below the approximately \$3,800 maximum fee charged by Agreement States, except for radiography, waste receipt and packaging, and broad-scope medical licensees. The broad-scope medical, and waste receipt and packaging licensees are primarily large entities. Therefore, with a \$2,000 maximum small entity annual fee and the average license and inspection fees, only small entities who are radiographers would pay slightly more than the current maximum Agreement State fee of approximately \$3,800. If the maximum fee is reduced by \$200 (from \$2,000 to \$1,800), then all categories of material licensees, including radiographers, would pay no more for each category than the 1991 maximum Agreement State fee of about \$3,800 if the licensee qualifies as a small entity.

By establishing the maximum annual fee for small entities at \$1,800, the annual fee for many small entities will be reduced while at the same time materials licensees, including small entities, would pay for most of the FY 1991 costs (\$22.3 million of the total \$27.2 million) attributable to them. Therefore, the NRC has established and will continue, for FY 1992, the maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity. Note that the costs not recovered from small entities are allocated to other material licensees and to operating power reactors.

While reducing the impact on many small entities, the Commission agrees that the current maximum annual fee of \$1,800 for small entities, when added to the part 170 license and inspection fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, the Commission is proposing to further reduce the impact on small entities with relatively low gross annual receipts.

Commenters have suggested that the NRC could reduce the impact of the fees for materials licensees by basing them on the licensee's nuclear capacity (e.g., the number of sources possessed, the number of hospital beds, or the amount of radioactive material possessed), or the frequency of use of the radioactive material). In adopting the July 10, 1991, final rule, the Commission recognized that inherent differences exist in the nuclear capacity and the frequency of source use for many of the classes of materials licensees. However, as indicated in section III of this analysis,

the Commission concludes that basing the fee on the number of sources, frequency of use, or amount of radioactive material possessed does not necessarily reduce the impact of the fees on small entities, which is the goal of the RFA. The Commission continues to believe that uniformly allocating the generic and other regulatory costs to the specific license to determine the amount of the annual fee is a fair and equitable way to recover its costs and that establishing reduced annual fees based on gross receipts (size) or population is the most appropriate approach to minimize the impact on small entities. Consistent with this approach, the Commission will continue the \$1,800 maximum annual fee per licensed category for small entities. In addition, the Commission proposes to create a lower tier annual fee per licensed category for small entities with relatively small gross annual receipts or with a relatively small population.

To implement this proposal, relatively small annual receipts must first be defined. Based on data from an NRC survey of materials licensees and the Department of Commerce industry census, the following data shows the distribution of businesses with annual gross receipts of less than \$3.5 million.

Annual gross receipts	NRC survey	Department of commerce (percent)
Less than \$250K	45	55
\$250-\$499K	14	22
\$500-\$749K	8	6
\$750-\$999K	9	6
\$1,000-\$3,500K	24	11

As this table shows, 45 to 55 percent (or about 50%) of small businesses with gross annual receipts of less than \$3.5 million have gross annual receipts that are less than \$250,000. Thus, by defining relatively small gross annual receipts as less than \$250,000, a significant number of small entities would be eligible for a further reduction of the impact of the annual fees. This level would also help ensure that those small businesses which probably would be impacted the most would pay the lower fee.

A similar approach has been used to define a relatively small governmental jurisdiction. Using 1990 data from the National Association of Counties, the distribution below for those counties located in non-Agreement States with a population of less than 50,000, shows that a population level of less than 20,000 would ensure that at least 50

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percent of the small counties would be eligible for reduced fees. This would also ensure that at least 50 percent of other governmental jurisdictions (cities, towns, villages, school districts, etc.) could also receive the benefits because these other jurisdictions are typically smaller than counties.

Population	Percent of total
Less than 5,000	10
5,000-9,999	18
10,000-14,999	16
15,000-19,999	14
20,000-24,999	9
25,000-50,000	33

The NRC must also determine the amount of the annual fee that should be assessed to lower tier small entities (less than \$250,000 in gross annual receipts for small businesses and small non-profit organizations, or less than 20,000 population for small governmental jurisdictions). The RFA and its implementing guidance do not provide specific guidelines on the amount or percent of gross receipts that should be charged to a small entity. In determining the amount of the annual fee for lower tier small entities, the Commission believes that the reduced fee should retain a balance between the objectives of the FRA and OBRA. This balance can be measured by (1) the amount of costs attributable to small entities that is transferred to larger entities (the small entity subsidy); (2) the total annual fee small entities pay, relative to this subsidy; and (3) how much the annual fee is for a lower tier small entity. Nuclear gauge users are used to measure the reduction in fees because they represent about 40 percent of the material licensees and most likely would include a larger percentage of lower tier small entities than other classes of materials licensees.

Before presenting alternative fees, the NRC notes that the number of licensees filing small entity certifications for the FY 1991 annual fees is lower than originally estimated. The NRC estimated 3,000 certifications in the current rule, which would have resulted in an estimated cost of about \$5 million in the small entity subsidy. On the basis of the response to the FY 1991 billings, the NRC's estimate now is that there are about 2,000 small entities.

The data below shows four different alternative lower tier small entity fees, their impact on the licensees, and their impact on the balance between OBRA and RFA.

Lower tier small entity annual fee	Reduction in fee for gauge users (percent)	Estimated FY 1992 small entity subsidy (dollars in millions)	Estimated FY 1992 annual fees paid by small entities (dollars in millions)
\$1,200	30	\$5.0	\$4.5
900	50	5.3	4.2
700	60	5.5	4.0
400	75	6.0	3.5

Each of the alternative lower tier annual fees reduces the annual fee for qualifying nuclear gauge licensees. However, the Commission is establishing an annual fee of \$400 per licensed category for the lower tier small entities because this amount should ensure that the lower tier small entities receive a reduction (75% for small gauge users) substantial enough to mitigate any severe impact. The amount of the small entity subsidy resulting from this fee would be equivalent to the amount estimated in the July 10, 1991, final rule, increased by 20 percent to account for the FY 1992 budget increase and the reduced number of material licensees resulting from license terminations after the FY 1991 rule became effective. Although the other reduced fees would result in lower subsidies, the Commission believes that the amount of the associated annual fees, when added to the license and inspection fees, would still be considerable for small businesses and organizations with gross receipts that are less than \$250,000 or for governmental entities in jurisdictions with a population of less than 20,000.

V. Summary

Comments received on the proposed rule dated April 12, 1991, and implementation of the final rule on July 10, 1991, provide evidence that the annual fee would significantly impact a substantial number of small entities. A maximum annual fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirements to consider means of reducing the impact of the proposed fee on small entities. On the basis of its regulatory flexibility analysis, the NRC concludes that a maximum annual fee of \$1,800 per licensed category for small entities and a maximum lower tier small entity annual fee of \$400 per licensed category for small businesses and non-profit organizations with gross annual receipts of less than \$250,000, and small governmental entities with a population of less than 20,000, will reduce the impact on small entities. At the same time, these reduced annual fees are

consistent with the objectives of OBRA-90. Thus, the revised fees for small entities maintain a balance between the objectives of OBRA-90 and the RFA.

TABLE 1.—1991 AVERAGE TOTAL SMALL ENTITY FEES PER YEAR

License fee category	Total small entity fee ¹	
	Max annual fee=\$2K	Max annual fee=\$1.5K
Special nuclear material (SNM):		
1C. Industrial Gauges	\$1,672	\$1,672
1D. All other SNM	2,506	2,006
Source material:		
2B. Shielding	463	463
2C. Other Source Materials	2,867	2,367
Byproduct material:		
3A. Manufacturing—broad	3,560	3,060
3B. Manufacturing—other	3,343	2,843
3C. Radiopharmaceuticals	3,207	2,707
3D. Radiopharmaceuticals—manufacturing	2,677	2,177
3E. Irradiators—self-shield	1,699	1,699
3F. Irradiators—<10,000 Ci	2,623	2,123
3G. Irradiators—>10,000 Ci	3,840	3,340
3H. Exempt distribution—Device review	2,815	2,315
3I. Exempt distribution—No device review	2,682	2,182
3J. Gen. license—Device review	2,679	2,179
3K. Gen. license—No device review	2,708	2,208
3L. R&D—Broad	3,210	2,710
3M. R&D—Other	3,050	2,550
3N. Service license	2,733	2,233
3O. Radiography	4,050	3,550
3P. All other byproduct materials	2,120	2,120
Waste disposal and processing:		
4B. Waste receipt/packaging	4,680	4,180
4C. Waste receipt—pre-packaged	3,216	2,716
Well logging:		
5A. Well logging	3,207	2,707
Nuclear laundry:		
6A. Nuclear laundry	3,030	2,530
Human use of byproduct, source, or SNM:		
7A. Teletherapy	3,788	3,288
7B. Medical—broad	4,360	3,860
7C. Medical—other	3,130	2,630
Civil defense:		
8A. Civil defense	1,789	1,789
Device, product, or sealed source safety evaluation:		
9A. Device/product—Broad	3,200	2,700
9B. Device/product—Other	2,580	2,080
9C. Sealed sources—Broad	1,530	1,530
9D. Sealed sources—Other	770	770

¹ Based on average 10 CFR part 170 fees plus maximum annual fees.

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57 FR 18388
Published 4/30/92
Effective 6/1/92

Uranium Enrichment Regulations

See Part 40 Statements of Consideration

57 FR 19458
Published 5/6/92

10 CFR Parts 170 and 171

RIN 3150-AE13

Limited Revision of Fee Schedules

Correction

In rule document 92-8947 beginning on page 13625 in the issue of Friday, April 17, 1992, make the following corrections:

1. On page 13625, in the third column, in the third paragraph, in the third line, "the" should read "The".

2. On page 13628, in the second column, under III. Final Action * * *, in the first paragraph, in the first line, "addresses" was misspelled.

3. On page 13634, in the second column, in the first full paragraph, in the ninth line, "57%" should read "75%".

57 FR 32691
Published 7/23/92
Effective 8/24/92

10 CFR Parts 170 and 171

RIN 3150-AE20

Revision of Fee Schedules; 100% Fee Recovery, FY 1992

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the licensing, inspection, and annual fees charged to its applicants and licensees. The amendments are necessary to implement Public Law 101-508, signed into law on November 5, 1990, which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year (FY) 1992 less amounts appropriated from the Nuclear Waste Fund (NWF). The amount to be recovered for FY 1992 is approximately \$492.5 million.

EFFECTIVE DATE: August 24, 1992.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory

Commission, Washington, DC 20555.
Telephone 301-492-4301.

SUPPLEMENTARY INFORMATION:

I. Background.

II. Responses to Comments.

III. Final Action—Changes Included In Final Rule.

IV. Section-by-Section Analysis.

V. Environmental Impact: Categorical Exclusion.

VI. Paperwork Reduction Act Statement.

VII. Regulatory Analysis.

VIII. Regulatory Flexibility Analysis.

IX. Backfit Analysis.

I. Background

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), signed into law on November 5, 1990, requires that the NRC recover approximately 100 percent of its budget authority less the amount appropriated from the Department of Energy (DOE) administered Nuclear Waste Fund (NWF) for FYs 1991 through 1995 by assessing license, inspection, and annual fees.

On July 10, 1991 (56 FR 31472), the NRC published a final rule in the Federal Register which established the part 170 professional hourly rate and the materials licensing and inspection fees as well as the part 171 annual fees to be assessed to recover approximately 100 percent of the FY 1991 budget. The July 10, 1991, final rule became effective August 9, 1991. In addition to establishing the FY 1991 fees, the August 9, 1991, final rule established the underlying basis and method for determining the part 170 hourly rate and fees and the part 171 annual fees.

This final rule includes the limited changes made to 10 CFR parts 170 and 171 which were issued as a final rule on April 17, 1992 (57 FR 13625), with an effective date of May 18, 1992. The limited change to part 170 allows the NRC to bill quarterly for those license fees that are currently billed every six months. The limited change to part 171 adjusts the maximum annual fee assessed a materials licensee who qualifies as a small entity under the NRC's size standards. The maximum annual fee of \$1,800 per licensed category is continued for FY 1992. However, a lower tier small entity fee of \$400 per licensed category has been established for small businesses and non-profit organizations with gross receipts of less than \$250,000 and small governmental jurisdictions with a population of less than 20,000.

On April 29, 1992 (57 FR 18095), the NRC published the proposed rule that presented the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its

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budget authority for FY 1992 less the appropriation received from the NWF. The basic methodology used in the proposed rule was unchanged from that used to calculate the part 170 professional hourly rate, the specific materials licensing and inspection fees in part 170, and the part 171 annual fees in the final rule published July 10, 1991 (56 FR 31472). Because the public was provided an opportunity to comment on the basic approach, policies, and methodology used in the July 10, 1991, final rule and because these comments were fully addressed in that final rule, the NRC requested public comment only on the issue of whether the methodology adopted in FY 1991 was properly applied to the FY 1992 budget authority.

II. Responses to Comments

The NRC received nineteen public comments by the close of the comment period on May 29, 1992, and an additional ten comments by the close of business on June 22, 1992. These comments were evaluated in the development of this final rule.

Of the twenty-nine comments, two were from power reactor licensees or their representatives and twenty-seven were from persons concerned with other types of licenses, including eleven comment letters from the uranium industry or their representatives. Copies of all comment letters received are available for inspection in the NRC Public Document Room, 2120 L Street, NW, (Lower Level), Washington, DC.

Many of the comments were similar in nature. For evaluation purposes, these comments have been grouped, as appropriate, and addressed in the context of the narrow focus of this final rule.

A. Comments Regarding Application of the Methodology.

1. Comment. A few commenters indicated that the NRC has not provided sufficient information on which to evaluate the fees to be assessed for FY 1992. These commenters stated that the NRC violated the Administrative Procedure Act (APA) by failing to provide an explanation of how it arrived at its final determination of the annual fees, particularly as they apply to fuel cycle facilities. They also stated that the NRC did not provide sufficient detail concerning the NRC budget to verify the significant changes in the proposed rule. Commenters recommended that the NRC make publicly available its Five Year Plan or other documents with an equivalent level of detail to provide the information necessary to allow an effective evaluation of, and permit affected licensees to provide

constructive comments on, the proposed rule.

Response. The NRC believes it has provided sufficient information concerning the FY 1992 budget to allow effective evaluation and constructive comment on the proposed rule. In part III, the Section-by-Section Analysis of the proposed rule published April 29, 1992 (57 FR 18097), the NRC provided a detailed explanation of the FY 1992 budgeted costs for the various classes of licensees being assessed fees. In addition, the NRC workpapers pertinent to the development of the fees to be assessed were placed in the Public Document Room (PDR) on April 29, 1992, for public review. The workpapers provide additional information concerning the development of the fees, including the FY 1992 budgeted resources at the subactivity level for the major programs. The resources shown in the workpapers are the same as those identified in the Five Year Plan for FY 1992 and are displayed at the lowest level, the subactivity level, as in the Five Year Plan.

2. Comment. A few commenters indicated that the hourly rate of \$123 for FY 1992 (a seven percent increase over FY 1991) is not justified, and that the NRC had not indicated that it is incurring an increase in the area of salaries, benefits, and overhead but rather an increase in total NRC spending. The commenters pointed out that the NRC professional rate has increased by approximately 115 percent over a seven year period while the Consumer Price Index (CPI) has shown an inflation rate of about 22 percent for the same period. The commenters recommended that the NRC bring its FY 1992 hourly rate back in line with the increase in the CPI and the average wage increases in the industry it regulates. This would be three to four percent a year or an hourly rate of \$119 for FY 1992. These commenters suggested that it is inappropriate to raise the professional rate and inspection fees by 7 percent. The commenters recommended that the NRC use the CPI or other indices for determining future adjustments to its hourly rates.

Response. The NRC professional hourly rate is established to recover approximately 100 percent of the Congressionally approved budget, less the appropriation from the NWF, as required by OBRA-90. Both the method and budgeted costs used by the NRC in the development of the hourly rate of \$123 for FY 1992 are discussed in detail in the part III, Section-by-Section Analysis, for § 170.20 of the proposed rule (57 FR 18097). For example, Table II

shows the direct FTEs (full time equivalents) by major program for FY 1992 and Table III shows the budgeted costs (salaries and benefits, administrative support, travel and other G&A contractual support) which must be recovered through fees assessed for the hours expended by the direct FTEs. The budgeted costs have increased \$38.6 million as compared to FY 1991 levels. This increase reflects the amount required by the NRC to effectively accomplish the mission of the agency. The specific details regarding the budget for FY 1992 are documented in the NRC's publication "Budget Estimates, Fiscal Years 1992-1993" (NUREG-1100, Volume 7), which is available to the public. Given the increase in the budget it is necessary to increase the 1992 hourly rate to recover 100 percent of the budget as required by OBRA-90. The NRC is unable to use the CPI or other indices in the development of the NRC hourly rate or the fees to be assessed under 10 CFR parts 170 and 171 because if the hourly rate were increased by only three to four percent over the FY 1991 levels, the NRC could not meet the statutory mandate requirement of OBRA-90 to recover approximately 100 percent of the NRC budget authority through fees.

3. Comment. Several commenters indicated that the imposition of the annual fees in certain instances bears no "reasonable relationship to the cost of providing regulatory services" and therefore the fees violate OBRA-90 in that they have not been "fairly and equitably" allocated among licensees. Commenters argued, for example, that the NRC should not charge two fees for one process covered by two licenses or that a higher amount of generic safety costs should not have been allocated to high enriched uranium facilities as compared to low enriched uranium facilities. Another commenter stated that it is not fair and equitable to assess a higher fee for a UF₆ converter than for a mill license. One commenter suggested that it is not considered "practicable" to assess all licensees of a class to compensate for revenue lost from other classes of licensees because of license terminations and that he should be provided an accounting of the component costs for NRC generic activities, e.g., rulemaking, upgrading safeguards requirements, modifying standard review plans, overseeing regional programs and developing inspection programs.

Response. In the final rule published July 10, 1991 (56 FR 31480), the NRC indicated that it is not practical to allocate costs on the basis of such

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factors as difference in processes and whether or not the facility has more safety problems than another facility at a specific point in time. It must be recognized that NRC generic safety and safeguards costs included in the annual fee are not related to a specific individual licensee. Costs related to a specific application, license or approval that provide an identifiable service are recovered under the fee regulations of 10 CFR part 170. For the generic and other regulatory costs not recovered under 10 CFR part 170, the NRC, in compliance with the requirements of OBRA-90, has allocated these costs to major classes of licensees. The law permits, and the NRC has established, a schedule of annual charges that assesses different annual charges for different licensees or classes of licensees. To the extent practicable and where necessary for a more fair and equitable allocation of costs, a major class of licensees was divided into subclasses. Within a class or subclass of licensees, the costs were uniformly allocated to each licensee in the class or subclass based on the premise that there is no significant difference in the generic and other regulatory services provided to each licensee within a class or subclass. This approach and principle were used for all classes of licensees. Therefore, the NRC cannot provide each licensee an accounting of the component costs for NRC generic and other regulatory activities. However, the activities associated with a specific class of licensees are summarized in this rule and detailed in publicly available fee workpapers. With respect to license terminations that occurred during FY 1991, it must be recognized that for FY 1992 the base or total number of licensees has decreased for some classes of licensees, and therefore the fees must be increased in FY 1992 in order for the NRC to recover approximately 100 percent of its budget. Because the costs are allocated to a class of licensees, any terminations that occur within the class will raise the fees for the remainder of the licensees within that class.

4. *Comment.* A few commenters indicated that the NRC may have inappropriately included certain budgeted costs in the fee base. One commenter indicated that the proposed rule did not show any offsets to FY 1992 salaries and expenses from revenues received from cooperative nuclear safety research programs, services rendered to foreign governments and international organizations, and the material and information access authorization program. This commenter noted that the FY 1992 authorization

language indicates that money from these programs may be retained and used for salaries and expenses associated with those activities. One commenter recommended that NRC review its FY 1992 allocation of funds and confirm that the Nuclear Waste Fund (NWF) appropriation of about \$20 million includes \$1.7 million in administrative costs for high level waste activities in order to avoid double payment by utilities, once through their mill/kwhr payment to the NWF and again through the annual charge that recoups total NRC administrative costs.

Response. The NRC provides some technical assistance to foreign governments and international organizations on a reimbursable basis and participates in cooperative research programs. For example, the Omnibus Budget Reconciliation Act, FY 1987, requires that the NRC certify containers that will be used to transport plutonium through United States air space and that all costs incurred for this certification be reimbursed by the foreign country involved. Examples of international cooperative research include the participation of Finland and Spain in severe accident research, Austria on source term research, and Korea on piping integrity research. These costs are not included in NRC's budget request but are paid for by the foreign government or international organization for which the work is being performed. These activities are therefore not included in the computation of 100 percent fee recovery for the funds appropriated to the NRC and are therefore not charged to licensees through the assessment of user fees. These monies are separately identified in the agency's financial systems, and are deposited and disbursed for the performance of the functions for which they are collected.

With respect to the NWF appropriation for the FY 1992 budget, \$1.7 million of the NRC's total administrative support funds was allocated to the High-Level Waste Regulation program based upon the full-time equivalent staffing budgeted for that program. Funds for the NRC High-Level Nuclear Waste Regulation program are appropriated from the Nuclear Waste Fund. Licensees are not charged fees for the administrative support costs which are allocated to the Nuclear Waste Fund.

5. *Comment.* One commenter indicated that to assess fee Category 2.A.(2), Class I, fees for sites undergoing reclamation amounts to double charging because these types of facilities are already charged fees under part 170 for

the full cost of regulatory services associated with the reclamation process.

Response: To recover 100 percent of the budget, the NRC assesses two types of fees. First, license and inspection fees are assessed under 10 CFR part 170 to recover the costs to the NRC of providing individual services to specific applicants for, and holders of, NRC licenses and approvals. The part 170 fees are billed for specific services rendered in response to an application filed with the NRC for review or an inspection conducted by the NRC. Second, annual fees are assessed under 10 CFR part 171 to recover NRC generic and other regulatory costs not recovered under 10 CFR part 170. This is the process used to charge uranium recovery licensees. Thus, there is no double charging of fees to uranium recovery licensees because the annual fee recovers only those costs not recovered under 10 CFR part 170.

6. *Comment.* A few commenters submitted comments on the methodology used by the NRC to develop the lower tier small entity fee of \$400 established by the NRC effective May 18, 1992. While applauding the NRC for developing a lower tier small entity fee, commenters recommended that the NRC —

(1) Expand the criteria as to what constitutes a "small entity" and that a sliding scale fee should be considered based on ability to pay;

(2) Reexamine the method of allocation of costs, particularly the lower tier small entity fee of \$400 because these commenters believe that it is inherently unfair to enable "mom and pop" operations to remain in business yet force modest companies, with comparably small radiographic testing departments, to subsidize them;

(3) Clarify whether the gross annual receipts are considered income generated only from the activities pertaining to the license or income generated from the entire entity composed of various departments; and

(4) Allow small county governmental jurisdictions to deduct the population of incorporated cities and villages not within the jurisdictional powers of the county.

Response. These types of comments were addressed by the NRC in section II, Responses to comments, item B., of the final limited rule published by the NRC on April 17, 1992 (56 FR 13626-13627). Briefly, the NRC indicated that any reduction in fees for small entities must be paid by other NRC licensees and that while the lower tier small entity fee of \$400 does not eliminate the impact of the fees on small entities, it

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substantially reduces the impact for those licensees with relatively low gross annual receipts of less than \$250,000 and for small governmental jurisdictions with a relatively low population of less than 20,000. With respect to the question of what constitutes gross annual receipts, the NRC stated clearly in establishing the size standards and in the promulgation of the final rule establishing the lower tier small entity fee that the term "annual receipts" is used in the same manner as used by the Small Business Administration (SBA). In 13 CFR 121.402(b)(2), annual receipts are defined " * * * to include all revenue in whatever form received or assessed from whatever sources * * * " (54 FR 52647; December 21, 1989) (57 FR 13625; April 17, 1992). Therefore, the term "annual gross receipts" refers to the licensee's entire business, not solely receipts from licensed activities. For purposes of qualifying as a small governmental jurisdiction under the NRC fee regulations, the population of a county includes the population of all cities, towns, and villages within the county. The NRC finds no basis to modify our approach in this area.

7. Comment. One commenter indicated that he had submitted a petition for rulemaking to the NRC to review the FY 1991 methodology so that medical licensees could be treated like similar licensees. The commenter believes the NRC is obligated to address the concerns raised in the petition in terms of whether the proposed fee schedule for FY 1992 is consistent with the methodology adopted in FY 1991. The commenter suggests that the NRC institute an immediate moratorium freezing fees at FY 1991 levels until the petition is considered in its entirety.

Response. The NRC is not obligated to address the concerns raised in the petition of rulemaking filed with the NRC before adopting the final rule establishing fees for FY 1992. The NRC clearly stated when it published receipt of the petition for rulemaking in the Federal Register that "NRC intends to consider the issues raised by the petitioners after the rulemaking action necessary to establish the license and annual fees for FY 1992 is completed * * *". The petitioners' concerns will be considered within the context of the review and evaluation of the fee program for FY 1993 which will be conducted as part of the NRC's continued implementation of Public Law 101-508" (57 FR 20213; May 12, 1992). The NRC has not yet completed that evaluation. To adopt an immediate moratorium freezing fees at the FY 1991 level until the petition is considered

would result in the NRC not meeting the statutory requirements of OBRA-90 that NRC recover approximately 100 percent of its budget authority for FY 1992.

8. Comment. One commenter indicated that the NRC did not properly apply the methodology in FY 1991 to one of its licensees who conducts multiple activities under a single license. The commenter noted that one UF₆ converter operates multiple activities under a single license and therefore a substantially larger share of NRC budgeted costs allocated to UF₆ converters should be assessed to the one licensee that is conducting multiple activities. For the same reason, the commenter indicated that this licensee should be assessed a substantially larger portion of the low level waste (LLW) surcharge.

Response. The NRC has reexamined the allocation of costs to the UF₆ conversion licensees. This reexamination has been accomplished within the framework of the OBRA-90, accompanying Conference Report, and the fundamental principles used by the Commission in establishing annual fees for all classes of licensees.

OBRA-90 and the accompanying Conference Report provide that to the maximum extent practicable, the annual fee shall have a reasonable relationship to the cost of providing regulatory services to the licensees. Consistent with the law and the guidance in the Conference Report, the NRC allocated its budgeted generic and other regulatory costs not recovered from 10 CFR part 170 license fees to the major classes of licensees. To the extent practicable and where necessary for a more fair and equitable allocation of costs, a major class of licensees was further subdivided into subclasses. For example, NRC costs for the fuel facilities class of licensees were allocated further to UF₆ conversion, HEU fuel fabrication, LEU fuel fabrication and other licensees. Within a subclass, the cost was uniformly allocated to each license in the subclass based on the premise that there is no significant difference in the generic and other regulatory services provided to each license within a subclass. This approach and principle were used for all classes of licensees.

The costs allocated to the licenses within the UF₆ subclass are for the safety generic and other regulatory activities that are attributable to this subclass of licensees and that are not recovered by 10 CFR part 170 license and inspection fees. These costs were allocated uniformly to each of the two licenses within the UF₆ subclass, based on the premise that there is not a

significant difference in the generic and other regulatory services provided to each of the licenses.

The same NRC regulations (e.g., 10 CFR part 40), guidance (e.g., Regulatory Guides) and policies are applicable to both the license which authorizes deconversion activities (UF₆ to UF₄) and UF₆ conversion and the license that only authorizes UF₆ conversion. The 10 CFR part 40 generic safety regulations are applied in the same manner to each of the two licenses in the subclass independent of the source material activities authorized by the two licenses.

The NRC costs attributable to the UF₆ subclass are more related to the fact that a license exists, not to the UF₆ manufacturing process. Thus a uniform allocation of costs to each license results in an annual fee that has a reasonable relationship to the generic and other regulatory services provided.

The surcharge portion of the annual fee includes NRC budgeted costs that are not attributable to the UF₆ subclass. However, it is assessed to the licensees in the subclass for policy reasons. For the UF₆ subclass of licensees, the surcharge includes a portion of low-level waste costs and costs not recovered from small entities. In the Conference Report, Congress indicated that these types of costs "may be recovered from such licensees as the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment." Following this guidance, the NRC decided to uniformly allocate these costs to each fuel facility resulting in the same surcharge for each license.

9. Comment. Several commenters indicated that it appeared as if uranium licensees are being billed for agency overhead that is not attributable to the regulation of the uranium mining industry. These commenters noted that a considerable amount of the agency resources are likely dedicated to interagency work for the Department of Energy (DOE), such as NRC review of DOE's reclamation plans for title 5 uranium mill tailings sites, and interaction with the Environmental Protection Agency (EPA) on the promulgation of regulations. The commenters noted that these agencies are not billed for these NRC activities which are associated with uranium recovery. The commenters disagreed with the NRC's position that all substantive review at DOE sites is essentially completed prior to the application for a general license for that site. The commenters also disagreed with NRC's interpretation of OBRA-90 that in order to be billed for annual fees one must be a licensee of the NRC. The

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commenters argued that the test is whether "any person" receives a service or thing of value from the Commission because OBRA-90 allows the "collection of fees from any person" and "all licensees". That person, whether a licensee or not, commenters argued, is required to pay fees to cover the NRC's cost of providing the services or thing of value.

Response. With respect to the 10 CFR part 170 fees assessed pursuant to the Independent Offices Appropriation Act (IOAA) of 1952, the NRC is precluded, under the IOAA, from assessing fees to Federal agencies for specific services rendered. The OBRA-90 limits annual fee assessments to licensees of the NRC. Thus, the NRC does assess annual fees under 10 CFR part 171 to Federal agencies to the extent that those Federal agencies have a license or approval/certificate from the NRC. As indicated in the Conference Report accompanying OBRA-90, the Commission must collect approximately 100 percent of its budget through fees, even though in some instances certain activities are not attributable to an existing NRC licensee or class of licensees. With regard to NRC activities for DOE under the Uranium Mill Tailings Radiation Control Act (UMTRCA), the NRC is prohibited under the IOAA from assessing such part 170 fees to Federal agencies. The fees cannot be assessed to DOE under OBRA-90 and 10 CFR part 171 because DOE does not possess a license or approval. Thus, the NRC has assessed the costs for review of DOE's UMTRCA actions based on the Conference Report guidance that the costs be "recovered from such licensees as the Commission in its discretion determines can fairly, equitably and practicably contribute to their payment." These costs are being recovered from power reactor licensees, not from uranium recovery licensees as implied by the commenters. This was noted in the discussion in the final rule of the surcharge for power reactors (56 FR 31486; July 10, 1991). The interaction that NRC has with EPA is necessary for NRC to develop and execute NRC's generic safety regulatory programs, primarily as a result of the Clean Air Act. Thus, some of these costs are for NRC generic regulatory activities for uranium recovery facilities and have been appropriately included in the annual fee.

B. Other Comments

1. **Comment.** A few commenters stated that the short time frame (30 days) allowed by the NRC for comment on the proposed rule did not provide an adequate opportunity to comment on the proposed rule.

Response. The NRC indicated in section I, Background, of the proposed rule published April 29, 1992, that a 30 day public comment period was being provided because OBRA-90 requires that NRC collect the revised FY 1992 fees by September 30, 1992, and that in order to comply with the public law, fees would have to be assessed on an expedited basis to ensure collection of the required fees by the end of the fiscal year (57 FR 18095). Thirty days represents a sufficient time to provide comments particularly because the NRC is not changing the approach or methodology for assessing fees that it adopted in FY 1991.

2. **Comment.** One commenter indicated that sections of the proposed regulation should be included within President Bush's moratorium of new regulations. This commenter argued that the fees for source material licensees, especially fee Category 2.A.(2), Class I, do not meet key aspects of President Bush's regulatory initiative because they are burdensome, impede economic growth, do not incorporate market mechanisms and do not provide a strong, systematic cost benefit realization.

Response. OBRA-90 requires the NRC to promulgate each year a user fee schedule that will result in the collection by the end of the fiscal year of a sum approximating 100 percent of its budget, minus the appropriation received from the Nuclear Waste Fund. Any delay in the publication of this rule would result in the NRC's inability to meet its statutorily imposed deadline for collecting FY 1992 user fees. Therefore, the NRC must publish this rule at this time.

3. **Comment.** Several commenters addressed the proposed change to the § 171.16, Category 2.A.(2) for uranium recovery licensees. The commenters indicated that dividing the current Class I facilities into two classes, which has the effect of increasing the annual fee for a mill by 138 percent over the FY 1991 levels, does not seem justified or reasonable and that the proposed rule does not distinguish between active and inactive facilities. The commenters stated that because inactive mill sites undergoing reclamation do not generate uranium mill tailings but are included in fee Category 2.A.(2) Class I, the NRC has overstated the costs for the entire category and appropriate adjustments must be made. Commenters believe that any licensed facility that is serving solely as a cost center and not generating revenues should be exempt from fees. A few commenters indicated that the assessment of annual fees for

part 71 Quality Assurance (QA) Plans that have increased 200 percent over 1991 levels have no reasonable relationship to the cost of providing regulatory services, particularly when the licensee pays separately on an hourly basis for all other services received from the NRC. Commenters pointed out that no other licensees or class of licensees is subject to the same exorbitant level of increase as fee Category 10.B, QA Program Approval Holders.

Response. OBRA-90 and the accompanying Conference Report provide that to the maximum extent practicable, the annual fee shall have a reasonable relationship to the cost of providing regulatory services to the licensees. Consistent with the law and the guidance in the Conference Report, the NRC allocated its budgeted generic and other regulatory costs not recovered from 10 CFR part 170 license fees to the major classes of licensees. To the extent practicable and where necessary for a more fair and equitable allocation of costs, a major class of licensees was further subdivided into subclasses. For example, NRC costs for the uranium recovery class of licensees were allocated further to "Class I," "Class II," and "Other" facilities. Within a subclass, the cost was uniformly allocated to each license in the subclass based on the premise that there is no significant difference in the generic and other regulatory services provided to each license within a subclass. This approach and principle were used for all classes of licensees.

The costs allocated to the licenses within the Class I subclass are for the safety generic and other regulatory activities that are attributable to this subclass of licensees and that are not recovered by 10 CFR part 170 license and inspection fees. These costs were allocated uniformly to each of the eight licenses within the Class I subclass. Uniform allocation is based on the premise that there is no significant difference in the generic and other regulatory services provided to each of the eight licenses. The NRC has reexamined the allocation of costs to the Class I uranium recovery facilities. This reexamination has been accomplished within the framework of the OBRA-90, the accompanying Conference Report, and the fundamental principles used by the NRC in establishing annual fees for all classes of licensees. The NRC generic and other regulatory costs attributable to the Class I facilities subclass are related to the fact that a license authorizing operation exists, not to whether the mill is active or inactive.

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Thus, a uniform allocation of costs to each license results in an annual fee that has a reasonable relationship to the generic and other regulatory services provided.

With respect to QA plan approvals, the NRC experienced a significant number of requests from QA approval holders to change their plans during the past year. Many QA approval holders amended their plans, within the window of opportunity provided by the NRC. These QA approval holders downgraded the authorized use of the plan from "fabrication and use" to "use" only. These changes have resulted in a significant decrease in the number of plans authorizing "fabrication and use" and an increase in the number of plans authorizing "use only". Therefore, in order to recover the costs for plans authorizing "fabrication and use" from fewer approval holders, it is necessary to assess a much higher annual fee than was assessed in FY 1991. Similarly, to recover the costs for plans authorizing "use only" from an increased number of plan holders has resulted in a lower annual fee for these approval holders.

4. *Comment.* One commenter objected to the NRC proposal to exempt from the FY 1992 annual fee those licensees who filed for termination or possession only during the period October 1, 1991, through December 31, 1991. This commenter indicated that it appeared arbitrary to establish such a deadline when changes to a license occur throughout the year and that licensees should be permitted to file exemption requests related to the FY 1992 fees after December 31, 1991. Another commenter indicated that in cases where the fees have substantially increased, licensees should now be given the option of canceling the license or approval and thus avoid the annual fee for FY 1992.

Response. In the proposed rule, the Commission indicated that during the one month period from the publication of the FY 1991 final rule on July 10, 1991, to August 9, 1991, the effective date of the rule, many licensees filed requests for termination with the NRC and were not subject to the FY 1991 annual fees. Many other licensees have either called or written to the NRC since the final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible but it was unable to respond and take appropriate action on all of the requests before the end of the fiscal year on September 30, 1991. Therefore, based on the number of requests filed, the Commission will exempt from the FY 1992 annual fees those licensees, and

holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage only licenses prior to January 1, 1992. All other licensees and approval holders who held a license or approval on October 1, 1991, will be subject to the FY 1992 annual fees. This would not, however, preclude a licensee from filing a specific exemption request with respect to the FY 1992 fees after December 31, 1991 and within ninety days of the effective date of this rule as specified in 10 CFR 171.11. An exemption request would be handled on a case-by-case basis. As in FY 1991, the NRC plans to continue a very high threshold of eligibility for exemption requests and reemphasizes its intent to grant exemptions sparingly. With respect to the comment that licensees now be given the option of canceling the license or approval and avoid the FY 1992 fee, the NRC notes that licensees were put on notice in the proposed rule published April 12, 1991, and again in the final rule published July 10, 1991, that the NRC would assess annual fees that would significantly impact a substantial number of its licensees in order to recover 100 percent of its budget authority for FY 1991 through FY 1995. The NRC mailed copies of both the proposed and final notices to each licensee.

5. *Comment.* A few commenters claimed that NRC intends to make the final rule establishing the FY 1992 license and annual fees effective upon publication in violation of section 553(b) of the Administrative Procedure Act.

Response. The NRC clearly stated in Section I, Background, of the proposed rule that, as in FY 1991, the final rule would become effective 30 days after publication in the Federal Register. The NRC will send a bill for the amount of the annual fee to the licensee or certificate, registration or approval holder upon publication of the final rule. Payment is due on the effective date of the rule (57 FR 18095; April 29, 1992). This fully satisfies all legal requirements.

C. Comments Beyond the Scope

There were four groups of comments that were not within the scope of the proposed rule, and therefore were not evaluated for the purposes of issuing this final rule. Briefly, they are—

The legality of the fees to be assessed by the NRC;

The appropriateness of the NRC budget and regulatory program;

The impact of the fees on licensees; and

The annual fee should be based on the amount of material, or the size of the licensee's operation.

1. Legality of Fees

Comment. Commenters indicated that OBRA-90 fails to set forth adequate standards to guide NRC's discretion in setting annual charges under part 171. Therefore, the fees amount to a "tax" rather than a "fee" and NRC lacks legal authority to promulgate and assess the charges.

Response. The legal issues, including the issue of "tax" vs. "fee", involved in the assessment of annual fees were fully addressed in the final rule published on July 10, 1991 (Section III, Responses to Comments, item A., Legal issues (58 FR 31473-31475)). The NRC's approach satisfies all legal requirements.

2. Appropriateness of NRC Budget and Regulatory Program

Comment. There were several commenters who questioned the size of the NRC budget and regulatory program. Some commenters indicated that they would expect a decrease in the NRC budget because of the significant reduction in the number of licensees within the past year and the fact that Maine became an Agreement State during FY 1992. Other commenters do not believe the 42 percent increase in the budget for uranium recovery activities over the previous year is justified given the current size of the licensed uranium industry. These commenters noted that there are no active conventional uranium mines and mills in the United States and only three commercially operating in-situ leach facilities. They argued that the fee of \$238,700 appears grossly out-of-line with the degree of NRC involvement for uranium recovery sites. Commenters suggested that the NRC—

(1) Freeze fees at FY 1991 levels;

(2) Distribute copies of the NRC budget to licensees for approval or disapproval; and

(3) Appoint an outside reviewer to evaluate the scope and effectiveness of the NRC medical program because the increases are tied to unnecessary and overly expensive medical regulation.

Response. OBRA-90 requires NRC to recover 100 percent of its budget authority through fees. The fees being assessed for FY 1992 fulfill this requirement. The budget is developed by the NRC, submitted by the President to the Congress, and approved by the Congress. The basis for the NRC FY 1992 resources are explained in the NRC's Budget Estimates, Fiscal Years 1992-1993 (NUREG-1100; Volume 7).

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The basis for the resources are thoroughly addressed by the Congress through hearings and written questions and answers. The FY 1992 NRC hearings are documented, for example, in the publication *Energy and Water Development Appropriations for FY 1992—Hearings Before a Subcommittee on Appropriations, House of Representatives, One Hundred Second Congress, First Session Part 6*. The resources resulting from this review and decision process are those necessary for NRC to implement its statutory responsibilities. The fees must be consistent with this approved budget in order to comply with OBRA-90. The agency makes an extraordinary effort to ensure to the maximum extent possible that fees are related to the cost of providing services to the beneficiaries of the NRC activity. Questions relating to the NRC budget approval process were also addressed in the final rule published by the Commission on July 10, 1991, in Section III, Responses to Comments, item E, *Other comments*, (56 FR 31482).

3. Impact of Fees on Licensees

Comment. Several commenters expressed concern about the impact of the fees. Some commenters indicated that an exemption should be offered to nonprofit medical institutions similar to nonprofit educational institutions and that the previous exemption from fees for State and local governments be reestablished.

Response. The impact issues regarding the assessment of the annual fees were fully addressed by the Commission in the final rule published July 10, 1991 (see Section III., Response to comments, item B2. Major Policy Issues—Consideration of nonsafety impacts in assessing fees.) The NRC continues to believe that the previous assessment of impacts and resulting conclusions remain appropriate.

4. Fees Based on Material Possessed and Size of Operation

Comment. Commenters suggested that the NRC assess fees based on the amount of throughput of material, the size of the facility, the amount or type of material possessed, the sales generated by the licensed location, the competitive condition of certain markets including the assessment of fees to Agreement States and the effect of fees on domestic and foreign competition. Another commenter indicated that it is not fair and equitable, and is contrary to the intent of Congress, to assess UFs converters a fee that is larger than assessed for a mill. Another commenter stated that the methodology the NRC

has applied is unjustified because it results in increased fees of over 2,000 percent over 1990 fee levels to some medical licensees while the risk to the patient remains the same. The commenter suggested that some consideration be given to the commensurate risk to the patient before exercising such exorbitant fees on the industry which has not increased the risk of radiation exposure to the public or to its patients.

Response. The issues of basing fees on the amount of material possessed, the frequency of use of the material, and the size of the facilities, were addressed by the NRC in the Regulatory Flexibility Analysis in appendix A to the final rule published July 10, 1991 (56 FR 31511–31513). The Commission did not adopt that approach, and finds no basis for altering its approach at this time.

III. Final Action—Changes Included in Final Rule

OBRA-90 requires that the NRC recover approximately 100 percent of its FY 1992 budget authority, including the funding of its Office of the Inspector General, less the appropriations received from the NWF, by assessing license and annual fees.

For FY 1992, the NRC's budget authority is \$512.5 million, of which approximately \$20.0 million has been appropriated from the NWF. Therefore, OBRA-90 requires that the NRC collect approximately \$492.5 million in FY 1992 through part 170 licensing and inspection fees and part 171 annual fees. The NRC estimates that approximately \$105 million will be recovered in FY 1992 from the fees assessed under part 170. This estimate represents an increase of \$15 million over that estimated in the proposed rule because of one additional quarterly billing in FY 1992. This is the result of the rule change effective May 18, 1992, which permits the NRC to bill licensees on a quarterly rather than a semiannual basis (April 17, 1992; 57 FR 13625). The remaining \$387.5 million would be recovered through the FY 1992 part 171 annual fees.

The Commission has not changed the basic approach, policies, or methodology for calculating the part 170 professional hourly rate, the specific materials licensing and inspection fees in part 170, and the part 171 annual fees set forth in the final rule published July 10, 1991 (56 FR 31472). The public was provided an opportunity to comment fully on the basic approach, policies, and methodology used in the July 10, 1991, final rule. Those comments were fully addressed by the Commission in its final rule. That rule has been challenged in Federal court by several parties and

those lawsuits are pending. Under this final rule, fees for most licenses will increase because —

(1) NRC's budget has increased. This has resulted in a corresponding increase in the professional hourly rate; and

(2) Approximately 2,000 licensees have requested that their licenses be terminated or combined since the FY 1991 final rule was adopted. This has resulted in fewer licensees to pay for the costs of regulatory activities not recovered under 10 CFR part 170.

A. Amendments to Part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

Four amendments have been made to part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. These revisions also comply with the guidance in the Conference Committee Report on OBRA-90 that fees assessed under the Independent Offices Appropriation Act (IOAA) recover the full cost to the NRC of all identifiable regulatory services each applicant or licensee receives.

First, the agency-wide professional hourly rate, which is used to determine the part 170 fees, is increased from \$115 per hour to \$123 per hour (\$214,509 per direct FTE). The rate is based on the FY 1992 direct FTEs and that portion of the FY 1992 budget that is not recovered through the appropriation from the NWF.

Second, the current part 170 licensing and inspection fees in §§ 170.21 and 170.31 for all applicants and licensees are increased by seven percent to reflect this increase in the professional hourly rate.

Third, the NRC is amending §§ 170.21, Facility Category K, and 170.31, Category 15, to make further refinements to the existing fee categories for import and export license applications and amendments.

Fourth, the NRC is amending § 170.3 to add a definition for nonprofit educational institutions.

B. Amendments to Part 171: Annual Fees for Reactor Operating Licenses, and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by NRC

Five amendments have been made to part 171. First, §§ 171.15, and 171.16 are amended to increase the annual fees for

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FY 1992 to recover approximately 100 percent of the FY 1992 budget less fees collected under part 170 and funds appropriated from the NWF. It should be noted that the amount of the annual fees for several classes of licensees has decreased from the amount shown in the proposed rule. The reason for the decrease in annual fees is that an additional \$15 million is estimated to be collected from part 170 fees in FY 1992 because of the change in the part 170 rule effective May 18, 1992, which permits the NRC to bill licensees on a quarterly rather than a semiannual basis.

Second, § 171.18, Category 2.A.(2), is amended to divide Class I facilities in the uranium recovery class of licensees into two classes. The additional category (Class II) would recognize those licensees who do not generate uranium mill tailings.

Third, § 171.11 is amended to require that licensees who wish to be considered for an exemption from the annual fees file their respective exemption requests within ninety (90) days from the effective date of the rule establishing the annual fees. As in FY 1991, the NRC plans to continue a very high threshold of eligibility for exemption requests and reemphasizes its intent to grant exemptions sparingly.

The NRC notes that during the one-month period from the publication of the FY 1991 final rule on July 10, 1991, to the effective date of the rule on August 9, 1991, many licensees filed requests for termination with the NRC and were not subject to the FY 1991 annual fees. Many other licensees have either called or written to the NRC since the final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible but was unable to respond and take action on all of the requests prior to the end of the fiscal year on September 30, 1991. Therefore, based on the number of requests filed, the Commission, for FY 1992, is exempting from the FY 1992 annual fees those licensees, and holders of certificates, registrations, and approvals who either filed for termination of their license or approval or filed for a possession only/storage only license during the period October 1, 1991, through December 31, 1991. All other licensees and approval holders who held a license or approval on October 1, 1991, are subject to the FY 1992 annual fees.

Fourth, § 171.19 is amended to credit the quarterly partial payments made by certain licensees in FY 1992 toward their FY 1992 annual fees.

Fifth, § 171.5 is amended to add a definition for nonprofit educational institutions.

The NRC notes that the impact of this final rule on small entities has been evaluated in the Regulatory Flexibility Analysis (see appendix A to this final rule). Based on this analysis, the NRC is continuing for FY 1992 a maximum annual fee of \$1,800 per licensed category for those licensees who qualify as a small entity under the NRC's size standards. The lower tier small entity annual fee of \$400 per licensed category for certain materials licensees, which was adopted by the NRC and became effective on May 18, 1992, will apply for FY 1992 (57 FR 13625; April 17, 1992).

The amounts to be collected through annual fees in the amendments to part 171 are based on the increased professional hourly rate. The part 171 annual fees have been determined using the same method used to determine the FY 1991 annual fees. These amendments to part 171 do not change the underlying basis for part 171; that is, charging a class of licensees for NRC costs attributable to that class of licensees. The changes are consistent with the Congressional guidance in the Conference Committee Report, which states that the "conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensee to such class" and the "conferees intend that the NRC assess the annual charge under the principle that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual fee." 136 Cong. Rec., at H12692-93.

C. FY 1992 Budgeted Costs

The FY 1992 budgeted costs by major activity, relating to the amendments to parts 170 and 171 are shown in Table I.

TABLE I.—RECOVERY OF NRC'S FY 1992 BUDGET AUTHORITY

Recovery method	Estimated amount (\$ in millions)
Nuclear Waste Fund.....	\$20.0
Part 170 (license and inspection fees)...	105.0
Part 171 (annual fees):	
Power Reactors.....	309.6
Nonpower Reactors.....	.6
Fuel Facilities.....	9.9
Spent Fuel Storage.....	.2
Uranium Recovery.....	2.0
Transportation.....	5.0
Material Users.....	31.3
Subtotal.....	358.6
Costs remaining to be recovered not identified above.....	28.9
Total.....	512.5

¹ Includes \$6.2 million that will not be recovered from small materials licensees because of the reduced small entity fees.

The \$28.9 million identified for those activities which are not identified as either part 170 or part 171 or the NWF in Table I are distributed among the NRC classes of licensees as follows:

\$25.1 million to operating power reactors;
\$1.9 million to fuel facilities; and
\$1.9 million to other materials licensees.

In addition, approximately \$6.2 million must be collected as a result of continuing the \$1,800 maximum fee for small entities and the lower tier small entity fee of \$400 for certain licensees. In order for the NRC to recover 100 percent of its budget authority in accordance with OBRA-90, the NRC will recover \$5.4 million of the \$6.2 million from operating power reactors and the remaining \$8 million from large entities that are not reactor licensees.

This distribution results in an additional charge (surcharge) of approximately \$272,000 per operating power reactor; \$155,100 for each HEU, LEU, and UF₆ fuel facility; \$38,800 for each other fuel facility license and waste disposal license in Category 4A; \$1,600 for each materials licensee in a category that generates a significant amount of low level waste; and \$150 for other materials licensees. When added to the base annual fee of approximately \$2.8 million per reactor, this will result in an annual fee of approximately \$3.1 million per operating power reactor. The total fuel facility annual fee would be between approximately \$0.1 million and \$2.3 million. The total annual fee for materials licenses would vary depending on the fee category(ies) assigned to the licensee.

These additional charges not directly or solely attributable to a specific class of NRC licensees or costs not recovered from all NRC licensees on the basis of previous Commission policy decisions would be recovered from the designated classes of licensees previously identified. A further discussion and breakdown of the specific costs by major classes of licensees are shown in section IV of this final rule.

The NRC notes that in prior litigation over NRC annual fees, the U.S. Court of Appeals for the District of Columbia Circuit concluded that the NRC "did not abuse its discretion by failing to impose the annual fee on all licensees." *Florida Power & Light Co. v. NRC*, 848 F.2d 765, 770 (D.C. Cir. 1988), cert. denied, 109 S. Ct. 1952 (1989). As noted earlier, the conferees on Public Law 101-508 have acknowledged the D.C. Circuit's holding

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that the Commission was within its legal discretion not to impose fees on all licensees.

IV. Section-by-Section Analysis

The following analysis of those sections that are affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, U.S. Code of Federal Regulations.

Part 170

Section 170.3 Definitions

The definition of a nonprofit educational institution is added to more specifically identify those applicants and licensees that are exempt from fees under § 170.11(a)(4) of the Commission regulations. Since the FY 1991 final rule was published, many licensees have commented that the NRC has not defined the term and that the criteria used by the NRC to classify licensees as nonprofit educational institutions are not clear. The NRC is defining the term "nonprofit educational institution" as a public or nonprofit educational institution whose primary function is education, whose programs are accredited by a nationally recognized accrediting agency or association, who is legally authorized to provide a program of organized instruction or study, who provides an educational program for which it awards academic degrees, and whose educational programs are available to the public.

Section 170.20 Average Cost Per Professional Staff Hour

This section is amended to reflect an agency-wide professional staff-hour rate based on FY 1992 budgeted costs. Accordingly, the NRC professional staff-hour rate for FY 1992 for all fee categories that are based on full cost is \$123 per hour, or \$214,509 per direct FTE. The rate is based on the FY 1992 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF. The rate is calculated using the identical method established for FY 1991. The method is as follows:

1. All direct FTEs are identified in Table II by major program.

TABLE II.—ALLOCATION OF DIRECT FTEs BY MAJOR PROGRAM

Major program	Number of direct FTEs ¹
Reactor Safety & Safeguards Regulation.....	1070.4
Nuclear Safety Research.....	154.1

TABLE II.—ALLOCATION OF DIRECT FTEs BY MAJOR PROGRAM—Continued

Major program	Number of direct FTEs ¹
Nuclear Material & Low-Level Waste Safety & Safeguards Regulation.....	294.5
Special and Independent Reviews, Investigations, and Enforcement.....	71.0
Nuclear Material Management and Support.....	23.0
Total direct FTE.....	* 1613.0

¹ FTE (full time equivalent) is one person working for a full year. Regional employees are counted in the office of the program each supports.

² In FY 1992, 1,613 FTEs of the total 3,261 FTEs are considered to be in direct support of NRC non-NWF programs. The remaining 1,648 FTEs are considered overhead and general and administrative.

2. NRC FY 1992 budgeted costs are allocated, in Table III, to the following four major categories:

- (1) Salaries and benefits.
- (2) Administrative support.
- (3) Travel.
- (4) Program support.

3. Direct program support, the use of contract or other services in support of the line organization's direct program, is excluded because these costs are charged directly through the various categories of fees.

4. All other costs (i.e., Salaries and Benefits, Travel, Administrative Support, and Program Support contracts/services for G&A activities) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Using this method, which was described in the final rule published July 10, 1991 (56 FR 31472), and excluding direct Program Support funds, the remaining \$346.0 million allocated uniformly to the direct FTEs (1613) results in a rate of \$214,509 per FTE for FY 1992. The Direct FTE Hourly Rate is \$123 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing \$346.0 million by the number of direct FTEs (1613 FTE) and the number of productive hours in one year (1,744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities."

TABLE III.—FY 1992 BUDGET AUTHORITY BY MAJOR CATEGORY

[Dollars in millions]	
Salaries and benefits	\$238.4
Administrative support	86.5
Travel	13.4
Total nonprogram support obligations.....	338.3
Program Support	154.2
Total Budget Authority.....	492.5

TABLE III.—FY 1992 BUDGET AUTHORITY BY MAJOR CATEGORY—Continued

[Dollars in millions]	
Less Program support (Direct Program).....	146.5
Budget Allocated to Direct FTE.....	346.0
Professional Hourly Rate.....	\$123/hour

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections and Import and Export Licenses.

The licensing and inspection fees in this section, which are based on full-cost recovery, are revised to reflect the FY 1992 budgeted costs and to more completely recover costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate as shown in § 170.20 and any direct program support (contractual services) cost expended by the NRC. Any professional hours expended on or after the effective date of this rule would be assessed at the FY 1992 rate shown in § 170.20.

Since July 10, 1991, the NRC has continued to receive comments regarding the fees assessed for import and export licenses in accordance with § 170.21, Facility Category K. Based on experience in implementing these fees for the first time, the Commission is amending the existing fee categories in this section to provide for more equitable flat fees by expanding the number of fee categories.

Footnote 2 of § 170.21 is revised to provide that for those applications currently on file and pending completion, the professional hours expended up to the effective date of this rule will be assessed at the professional rates established for the June 20, 1984, January 30, 1989, July 2, 1990, and July 10, 1991, rules as appropriate. For topical report applications currently on file which are still pending completion of the review, and for which review costs have reached the applicable fee ceiling established by the July 2, 1990, rule, the costs incurred after any applicable ceiling was reached through August 8, 1991, will not be billed to the applicant. Any professional hours expended for the review of topical report applications, amendments, revisions or supplements to a topical report on or after August 9, 1991, are assessed at the applicable rate established by § 170.20.

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Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, Including Inspections and Import and Export Licenses.

The licensing and inspection fees in this section are modified to recover more completely the FY 1992 costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. Those flat fees, which are based on the average time to review an application or conduct an inspection, are increased by seven percent across the board to reflect the increase in the professional hourly rate from \$115 per hour in FY 1991 to \$123 per hour in FY 1992. After application of the seven percent increase to the flat materials fees, the amounts were rounded, as in FY 1991, by applying standard rules of arithmetic so that the amounts rounded would be de minimus and convenient to the user. Fees that are greater than \$1,000 are rounded to the nearest \$100. Fees under \$1,000 are rounded to the nearest \$10.

For example, an industrial radiography licensee (Category 3.0.) will pay revised license and inspection fees as follows:

Type of fees	Current fees	Increase (per-cent)	FY 1992 fees
Application.....	\$3,000	7	\$3,200
Renewal.....	1,800	7	1,900
Amendment.....	490	7	520
Routine inspection.....	1,200	7	1,300
Nonroutine inspection.....	2,500	7	2,700

The increase is applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D, 10.B and 16. The increased fees are assessed for applications filed or inspections conducted on or after the effective date of this rule. Based on experience in implementing the import and export license fees assessed under fee Category 15, the Commission is amending the existing fee categories to provide for more equitable flat fees by expanding the number of fee categories.

For those licensing, inspection, and review fees assessed that are based on full-cost recovery (cost for professional staff hours plus any contractual services), the revised hourly rate of \$123, as shown in § 170.20, applies to those professional staff hours expended on or after the effective date of this rule.

Part 171

Section 171.5 Definitions

The definition of a nonprofit educational institution is added to provide clarification and to more specifically identify those licensees that are exempt from the annual fees under § 171.11(a). Since the final rule was published, many licensees have commented that NRC has not defined the term and that the criteria used by the NRC to classify licensees as nonprofit educational institutions are not clear. The NRC is defining the term "nonprofit educational institution" as a public or nonprofit educational institution whose primary function is education, whose programs are accredited by a nationally recognized accrediting agency or association, who is legally authorized to provide a program of organized instruction or study, who provides an educational program for which it awards academic degrees, and whose educational programs are available to the public.

Section 171.11 Exemptions

Paragraph (a) of this section is amended to require that requests for exemption from the annual fees be filed by the licensee within ninety (90) days from the effective date of the final rule establishing the annual fees. Based on the NRC's experience with the filing of exemption requests under the FY 1991 final rule, a defined time period must be established for the prompt filing of exemption requests. The NRC is, therefore, limiting the filing of exemption requests to the 90 day period immediately following the effective date of the rule establishing the annual fees. Absent extraordinary circumstances, any exemption requests filed beyond that date will not be considered. The NRC, in making this change, is not intending to change its exemption policy. As in FY 1991, the NRC plans to continue a very high eligibility threshold for exemption requests and reemphasizes its intent to grant exemptions sparingly. Therefore, the NRC strongly discourages the filing of exemption requests by licensees who have previously had exemption requests denied unless there are significantly changed circumstances.

Exemption requests, or any requests to clarify the bill, will not, per se, extend the interest-free period for payment of the bill. Bills are due on the effective date of the final rule. Therefore, only

payment will ensure avoidance of interest, administrative, and penalty charges.

The NRC notes that during the one month period from the publication of the FY 1991 final rule on July 10, 1991, to August 9, 1991, the effective date of the rule, many licensees filed requests for termination with the NRC and were not subject to the FY 1991 annual fees. Many other licensees have either called or written to the NRC since the final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible but it was unable to respond and take appropriate action on all of the requests before the end of the fiscal year on September 30, 1991. Therefore, based on the number of requests filed, the NRC is exempting from the FY 1992 annual fees those licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage only licenses during the period October 1, 1991, through December 31, 1991. All other licensees and approval holders who held a license or approval on October 1, 1991, are subject to the FY 1992 annual fees.

Section 171.15 Annual Fee: Reactor Operating Licenses

The annual fees in this section are revised to reflect the FY 1992 budgeted costs. Paragraphs (b)(3), (c)(2), (d), and (e) are revised to comply with the requirement of OBRA-90 to recover approximately 100 percent of the NRC budget for FY 1992. Table IV shows the budgeted costs that have been allocated to operating power reactors. They have been expressed in terms of the NRC's FY 1992 programs and program elements. The resulting total base annual fee amount for power reactors is also shown. On the average, the power reactor base annual fees for FY 1992 have increased about seven percent above the FY 1991 annual fees. It is noted that the power reactor annual fees have decreased from the amount shown in the proposed rule. The decrease in power reactor annual fees is the result of additional collections which are estimated from part 170 power reactor fees because of the rule change effective May 18, 1992, which permits the NRC to bill licensees on a quarterly rather than a semiannual basis.

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TABLE IV.—ALLOCATION OF NRC FY 1992 BUDGET TO POWER REACTORS BASE FEES ¹

	Program element total		Allocated to power reactors	
	Program support (\$, K)	Direct FTE	Program support (\$, K)	Direct FTE
Reactor Safety and Safeguards Regulation (RSSR):				
Power Reactor Applications Reviews.....	\$1,100	14.9	1,100	14.9
Standard Reactor Designs Reviews.....	2,438	56.4	2,438	56.4
Other Reviews.....	350	8.2		5.9
Reactor License Renewal.....	1,913	13.7	1,913	13.7
Improvements to Regulations.....	2,800	14.5	2,800	14.5
Reactor Performance Evaluation.....	718	33.2	718	33.2
Evaluation of Licensee Performance.....	600	33.4	600	33.4
Reactor Accident Management.....	400	10.1	400	10.1
Human Performance Evaluation.....	600	3.2	600	3.2
Reactor Operator Examinations.....	6,620	55.9	6,255	53.7
Resident Inspections.....		203.9		203.9
Region-Based Inspections.....	5,258	265.7	5,258	280.5
Specialized Inspections.....	3,197	69.5	3,197	69.5
Project Management.....		156.6		156.6
Licensing Activities Safety.....	6,816	87.0	6,816	87.0
Evaluations.....				
Regulatory Improvements.....	335	24.2	335	23.1
RSSR Program Total.....			32,430	1,059.8
Nuclear Safety Research (NSR):				
Integrity of Reactor Components.....	27,650	17.5	26,150	17.4
Prevent Damage to Reactor Cores.....	19,655	26.5	19,455	26.2
Reactor Containment Performance.....	13,922	10.5	13,922	10.5
Advanced Reactor Research.....	13,050	22.5	13,050	22.5
Generic Safety Issue Resolution.....	4,313	24.1	4,313	24.1
Developing and Improving Regulations.....	6,450	22.0	5,200	13.4
Severe Accident Implementation.....	2,125	6.0	2,125	6.0
Radiation Protection/Health Effects.....	6,285	17.5	3,119	8.6
NSR Program Total.....			87,334	128.7
Nuclear Material and Low Level Waste Safety and Safeguards Regulation:				
Safeguards Licensing and Inspection.....	465	8.8		.1
Threat and Event Assess./International Safeguards.....	525	13.2	405	6.8
Decommissioning.....	1,000	28.1	125	3.7
NMLWSSR Program Total.....			530	10.6
Special and Independent Reviews, Investigations, and Enforcement:				
Diagnostic Evaluations.....	350	7.0	350	7.0
Incident Investigations.....	50	3.0	50	3.0
NRC Incident Response.....	1,980	27.0	1,980	27.0
Operational Data Analysis.....	2,187	25.0	2,087	23.0
Performance Indicators.....	1,047	4.0	1,047	4.0
Operational Data Collection/Dissemination.....	2,016	5.0	2,016	5.0
SIRIE Program Total.....			7,530	69.0
Total.....			127,824	1,267.9
Total base fee amount allocated to power reactors— \$399.8 million ²				
Less estimated part 170 power reactor fees— 90.2 million				
Part 171—Base fees for operating power reactors— \$309.6 million				

¹ Base annual fees include all costs attributable to the operating power reactor class of licensees. The base fees do not include costs allocated to power reactors for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

Based on the information in Table IV, FY 1992 are the amounts shown in Table V below for each nuclear power operating license the base annual fees to be assessed for

TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS

Reactors	Containment type	Annual fee
Westinghouse:		
1. Beaver Valley 1.....	PWR Large Dry Containment.....	\$2,855,000
2. Beaver Valley 2.....	do.....	2,855,000
3. Braidwood 1.....	do.....	2,855,000
4. Braidwood 2.....	do.....	2,855,000
5. Byron 1.....	do.....	2,855,000
6. Byron 2.....	do.....	2,855,000
7. Callaway 1.....	do.....	2,855,000
8. Comanche Peak 1.....	do.....	2,855,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
9. Diablo Canyon 1.....	do.....	2,849,000
10. Diablo Canyon 2.....	do.....	2,849,000
11. Farley 1.....	do.....	2,855,000
12. Farley 2.....	do.....	2,855,000
13. Ginna.....	do.....	2,855,000
14. Haddam Neck.....	do.....	2,855,000
15. Harris 1.....	do.....	2,855,000
16. Indian Point 2.....	do.....	2,855,000
17. Indian Point 3.....	do.....	2,855,000
18. Kewaunee.....	do.....	2,855,000
19. Millstone 3.....	do.....	2,855,000
20. North Anna 1.....	do.....	2,855,000
21. North Anna 2.....	do.....	2,855,000
22. Point Beach 1.....	do.....	2,855,000
23. Point Beach 2.....	do.....	2,855,000
24. Prairie Island 1.....	do.....	2,855,000
25. Prairie Island 2.....	do.....	2,855,000
26. Robinson 2.....	do.....	2,855,000
27. Salem 1.....	do.....	2,855,000
28. Salem 2.....	do.....	2,855,000
29. San Onofre 1.....	do.....	2,849,000
30. Seabrook 1.....	do.....	2,855,000
31. South Texas 1.....	do.....	2,855,000
32. South Texas 2.....	do.....	2,855,000
33. Summer 1.....	do.....	2,855,000
34. Surry 1.....	do.....	2,855,000
35. Surry 2.....	do.....	2,855,000
36. Trojan.....	do.....	2,849,000
37. Turkey Point 3.....	do.....	2,855,000
38. Turkey Point 4.....	do.....	2,855,000
39. Vogtle 1.....	do.....	2,855,000
40. Vogtle 2.....	do.....	2,855,000
41. Wolf Creek 1.....	do.....	2,855,000
42. Zion 1.....	do.....	2,855,000
43. Zion 2.....	do.....	2,855,000
44. Catawba 1.....	PWR—Ice Condenser.....	2,850,000
45. Catawba 2.....	do.....	2,850,000
46. Cook 1.....	do.....	2,850,000
47. Cook 2.....	do.....	2,850,000
48. McGuire 1.....	do.....	2,850,000
49. McGuire 2.....	do.....	2,850,000
50. Sequoyah 1.....	do.....	2,850,000
51. Sequoyah 2.....	do.....	2,850,000
Combustion Engineering:		
1. Arkansas 2.....	PWR Large Dry Containment.....	2,850,000
2. Calvert Cliffs 1.....	do.....	2,850,000
3. Calvert Cliffs 2.....	do.....	2,850,000
4. Ft. Calhoun 1.....	do.....	2,850,000
5. Maine Yankee.....	do.....	2,850,000
6. Millstone 2.....	do.....	2,850,000
7. Palisades.....	do.....	2,850,000
8. Palo Verde 1.....	do.....	2,844,000
9. Palo Verde 2.....	do.....	2,844,000
10. Palo Verde 3.....	do.....	2,844,000
11. San Onofre 2.....	do.....	2,844,000
12. San Onofre 3.....	do.....	2,844,000
13. St. Lucie 1.....	do.....	2,850,000
14. St. Lucie 2.....	do.....	2,850,000
15. Waterford 3.....	do.....	2,850,000
Babcock & Wilcox:		
1. Arkansas 1.....	PWR Large Dry Containment.....	2,866,000
2. Crystal River 3.....	do.....	2,866,000
3. Davis Besse 1.....	do.....	2,866,000
4. Oconee 1.....	do.....	2,866,000
5. Oconee 2.....	do.....	2,866,000
6. Oconee 3.....	do.....	2,866,000
7. Three Mile Island 1.....	do.....	2,866,000
General Electric:		
1. Browns Ferry 1.....	Mark I.....	2,810,000
2. Browns Ferry 2.....	do.....	2,810,000
3. Browns Ferry 3.....	do.....	2,810,000
4. Brunswick 1.....	do.....	2,810,000
5. Brunswick 2.....	do.....	2,810,000
6. Clinton 1.....	Mark III.....	2,810,000
7. Cooper.....	Mark I.....	2,810,000
8. Dresden 2.....	do.....	2,810,000
9. Dresden 3.....	do.....	2,810,000
10. Duane Arnold.....	do.....	2,810,000
11. Fermi 2.....	do.....	2,810,000
12. Fitzpatrick.....	do.....	2,810,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
13. Grand Gulf 1.....	Mark III.....	2,810,000
14. Hatch 1.....	Mark I.....	2,810,000
15. Hatch 2.....	do.....	2,810,000
16. Hope Creek 1.....	do.....	2,810,000
17. LaSalle 1.....	Mark II.....	2,821,000
18. LaSalle 2.....	do.....	2,821,000
19. Limerick 1.....	do.....	2,821,000
20. Limerick 2.....	do.....	2,821,000
21. Millstone 1.....	Mark I.....	2,810,000
22. Monticello.....	do.....	2,810,000
23. Nine Mile Point 1.....	do.....	2,810,000
24. Nine Mile Point 2.....	Mark II.....	2,821,000
25. Oyster Creek.....	Mark I.....	2,810,000
26. Peach Bottom 2.....	do.....	2,810,000
27. Peach Bottom 3.....	do.....	2,810,000
28. Perry 1.....	Mark III.....	2,810,000
29. Pilgrim.....	Mark I.....	2,810,000
30. Quad Cities 1.....	do.....	2,810,000
31. Quad Cities 2.....	do.....	2,810,000
32. River Bend 1.....	Mark III.....	2,810,000
33. Susquehanna 1.....	Mark II.....	2,821,000
34. Susquehanna 2.....	do.....	2,821,000
35. Vermont Yankee.....	Mark I.....	2,810,000
36. Washington Nuclear 2.....	Mark II.....	2,814,000
Other Reactors:		
1. Big Rock Point.....	GE Dry Containment.....	2,810,000
2. Yankee Rowe.....	Westinghouse PWR Dry Containment.....	2,855,000
3. Rancho Seco.....	B&W PWR-Dry Containment.....	2,860,000
4. Three Mile Island 2.....	B&W PWR-Dry Containment.....	2,866,000

The "Other Reactors" listed in Table V have not been included in the fee base because historically they have been granted either full or partial exemptions from the annual fees. With respect to Big Rock Point and Yankee Rowe, the NRC, in this final rule, hereby grants partial exemptions from the FY 1992 annual fees based on requests filed with the NRC in accordance with § 171.11. The total amount of \$781,300 to be paid by the two licensees has been subtracted from the total amount to be assessed operating reactors as a surcharge. The NRC, in this final rule, hereby grants full exemptions from the FY 1992 annual fees for Rancho Seco and Three Mile Island 2 based on the fact that these reactors are either permanently or prematurely shut down and do not intend to operate in the future.

Paragraph (b)(3) is revised to change the fiscal year references from FY 1991 to FY 1992. Paragraph (c)(2) is amended to show the amount of the surcharge for FY 1992, which is added to the base annual fee for each operating power reactor shown in Table V. This surcharge recovers those NRC budgeted costs that are not directly or solely attributable to operating power reactors, but nevertheless must be recovered to comply with the requirements of OBRA-90. The NRC has continued its previous policy decision to recover these costs from operating power reactors.

The FY 1992 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

Category of costs	FY 1992 budgeted costs (\$ in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee:	
a. Reviews for DOE/DOD reactor projects, West Valley Demonstration Project, DOE Uranium Mill Tailings Radiation Control Act (UMTRCA) actions.....	\$4.1
b. International cooperative safety program and international safeguards activities.....	7.9
c. 60% of low level waste disposal generic activities.....	5.8
d. Uranium enrichment generic activities.....	.7
2. Activities not assessed part 170 licensing and inspection fees or part 171 annual fees based on Commission policy:	
a. Activities associated with nonprofit educational institutions.....	6.6
b. Costs not recovered from part 171 for small entities.....	5.4
Subtotal budgeted costs.....	30.5
Less amount to be assessed to small older reactors with partial exemption under part 171.....	.8
Total budgeted costs.....	29.7

The annual additional charge is determined as follows:

Total budgeted costs ÷ Total number of operating power reactors = \$29.7

million ÷ 109 = \$272,000 per operating power reactor.

On the basis of this calculation, an operating power reactor, Beaver Valley 1, for example, would pay a base annual fee of \$2,855,000 and an additional charge of \$272,000 for a total annual fee of \$3,127,000 for FY 1992.

Paragraph (d) is revised to show, in summary form, the amount of the total FY 1992 annual fee, including the surcharge, to be assessed for each major type of operating power reactor.

Paragraph (e) is revised to show the amount of the FY 1992 annual fee for non-power (test and research) reactors. In FY 1992, \$557,000 in costs are attributable to those commercial and Federal government licensees that are licensed to operate test and research reactors. Applying these costs uniformly to those nonpower reactors which are not exempt from fees results in an annual fee of \$55,700 per operating license.

Section 171.16. Annual Fees: Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government Agencies Licensed by the NRC

The introduction to paragraph (c) is being revised to include educational institutions in the list identifying the types of small entities that may be eligible to pay a reduced annual fee. The

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change in this paragraph is necessary because educational institutions were inadvertently omitted from the final rule published on April 17, 1992 (57 FR 13625), relating to reduced annual fees for certain small entities. Paragraph (c)(4) is revised to indicate that the maximum annual fee per licensed category is \$1,800 for a small entity in FY 1992.

Paragraph (d) is revised to reflect the FY 1992 budgeted costs for materials licensees, including Government agencies licensed by the NRC. These fees are necessary to recover the FY 1992 generic costs totalling \$48.4 million applicable to fuel facilities, uranium recovery facilities, holders of transportation certificates and QA program approvals, and other materials licensees, including holders of sealed source and device registrations. It is noted that the amount of the annual fees for some classes of licensees has

decreased from the amount shown in the proposed rule. The decrease is the result of the additional collections which are estimated from part 170 fees because of a rule change effective May 18, 1992, which permits the NRC to bill licensees on a quarterly rather than a semiannual basis.

Tables VI and VII show the NRC program elements and resources that are attributable to fuel facilities and materials users, respectively. The costs attributable to the uranium recovery class of licensees are those associated with uranium recovery licensing and inspection. For the uranium recovery class of licenses, the current Category 2.A.(2) for Class I facilities is further divided into Class I and Class II facilities. Class II facilities are those solution mining licensees, primarily in-situ and heap leach facilities, which do not generate uranium mill tailings. The NRC has reexamined the uniform

allocation of costs to Class I facilities in the current rule to determine whether there is a significant difference between the regulatory services provided to operating in-situ facilities that do not generate mill tailings as compared to other licensees in Class I. The NRC is dividing the current Class I facilities into two classes to differentiate between those facilities that generate uranium mill tailings and those facilities that do not generate uranium mill tailings because there are generic regulatory activities (e.g., appendix A to 10 CFR part 40) that are necessary to regulate uranium mill tailings.

For transportation, the costs are those budgeted for transportation research, licensing, and inspection. Similarly, the budgeted costs for spent fuel storage are those for spent fuel storage research, licensing, and inspection.

TABLE VI.—ALLOCATION OF NRC FY 1992 BUDGET TO FUEL FACILITY BASE FEES ¹

	Total program element		Allocated to fuel facility	
	Program support \$, K	FTE	Program support \$, K	FTE
Nuclear Safety Research:				
Environmental policy and decommissioning	\$2,675	8.5	\$180	.6
NSR Program Total			180	.6
Nuclear Material and Low Level Waste Safety and Safeguards Regulation:				
Fuel facilities lic./inspections	\$2,460	39.1	\$1,260	27.2
Event evaluation		25.0		3.6
Safeguards licensing/inspection	665	21.9	615	16.7
Policy, threat and event assessment	525	13.2	45	.6
Decommissioning	1,000	28.1	54	4.7
NMLLWSSR Program Total			1,974	52.8
Total			2,154	53.4
Total Base Fee Amount Allocated to Fuel Facilities				² \$13.6 million
Less Part 170 Fuel Facility Fees				3.7 million
Part 171 Base Fees for Fuel Facilities				\$9.9 million

¹ Base annual fee includes all costs attributable to the fuel facility class of licensees. The base fee does not include costs allocated to fuel facilities for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

TABLE VII.—ALLOCATION OF FY 1992 BUDGET TO MATERIAL USERS BASE FEES ¹

	Total		Allocated to materials users	
	Program support \$, K	FTE	Program support \$, K	FTE
Nuclear Safety Research Mission Area:				
Human factors	\$5,750	5.2	\$180	.3
Radiation protection/health effects	6,285	17.5	3,677	13.3
Total			3,857	13.6
Nuclear Material and Low Level Waste Safety and Safeguards Regulation:				
Licensing/inspection of materials users	\$2,190	110.5	\$1,971	99.5
Event evaluation		18.2		13.1
Decommissioning	1,000	28.1	446	15.3
NMLLWSSR program total			2,417	127.9

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TABLE VII.—ALLOCATION OF FY 1992 BUDGET TO MATERIAL USERS BASE FEES ¹—Continued

	Total		Allocated to materials users	
	Program support \$,K	FTE	Program support \$,K	FTE
Special and Independent Reviews, Investigations, and Enforcement:				
Operational data analysis (PE).....			100	2.0
Total.....			6,374	143.5
Base Amount Allocated to Materials Users (\$,M).....				² \$37.1 million
Less Part 170 Material Users Fees.....				\$5.8 million
Part 171 Base Fees for Material Users.....				\$31.3 million

¹ Base annual fee includes all costs attributable to the materials class of licensees. The base fee does not include costs allocated to materials licensees for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

The allocation of the NRC's \$9.9 million in budgeted costs to the individual fuel facilities is based, as in FY 1991, primarily on the conferees' guidance that licensees who require the greatest expenditure of NRC resources should pay the greatest annual fee. Because the two high-enriched fuel manufacturing facilities possess strategic quantities of nuclear materials, more NRC generic safety and safeguards costs (e.g., physical security) are attributable to these facilities.

Using this approach, the base annual fee for each facility is shown below.

	Annual fee (\$ in thousands)		
	Safeguards	Safety	Total
High Enriched Fuel:			
Nuclear Fuel Services.....	\$1,073	\$1,097	\$2,170
Babcock and Wilcox.....	1,073	1,097	2,170
Subtotal.....	2,146	2,194	4,340
Low Enriched Fuel:			
Siemens Nuclear Power.....	150	533	683
Babcock and Wilcox.....	150	533	683
General Electric.....	150	533	683
Westinghouse.....	150	533	683
Combustion Engineering (Hematite).....	150	533	683
Combustion Engineering (Windsor).....	150	533	683
Subtotal.....	900	3,198	4,098
UF ₆ Conversion:			
Allied Signal Corp.....		381	381
Sequoyah Fuels Corp.....		381	381
Subtotal.....		762	762
Other fuel facilities (9 facilities at \$72,000 each).....		648	648
Total.....	3,046	6,802	9,848

The allocation of the costs attributable to uranium recovery is also based on the conferees' guidance that licensees who require the greatest

expenditure of NRC resources should pay the greatest annual fee. It is estimated that approximately 60 percent of the \$2.0 million for uranium recovery is attributable to uranium mills (Class I facilities). Approximately 20 percent of the \$2.0 million for uranium recovery is attributable to those solution mining licensees who do not generate uranium mill tailings (Class II facilities). The remaining 20 percent is allocated to the other uranium recovery facilities (e.g. extraction of metals and rare earths). The resulting annual fees for each class of licensee are:

Class I facilities—\$167,500;
Class II facilities—\$73,200;
Other facilities—\$58,800.

For spent fuel storage licenses, the generic costs of \$172,000 has been spread uniformly to those licensees who hold specific or general licenses for receipt and storage of spent fuel at an ISFSI. This results in an annual fee of \$43,000.

To equitably and fairly allocate the \$31.3 million attributable to the approximately 7,100 diverse material users and registrants, the NRC has continued to base the annual fee on the Part 170 application and routine inspection fees. Because the application and inspection fees are indicative of the complexity of the license, this approach continues to provide a proxy for allocating the costs to the diverse categories of licensees based on how much it costs NRC to regulate each category. The fee calculation also continues to consider the inspection frequency because the inspection frequency is indicative of the safety risk and resulting regulatory costs associated with the categories of licensees. In summary, the annual fee for each category of license is developed as follows:

Annual Fee = (Application Fee + Inspection Fee/Inspection Priority) × Constant + (Unique Category Costs)

The constant is the multiple necessary to recover \$31.3 million and is 2.8 for FY 1992. The unique costs are any special costs that the NRC has budgeted for a specific category of licensees. For FY 1992, unique costs of approximately \$2.5 million were identified for the medical improvement program which is attributable to medical licensees; about \$200,000 in costs were identified as being attributable to radiography licensees; and about \$100,000 was identified as being attributable to irradiator licensees. On the average, the materials annual fees for FY 1992 are increased about 50 percent above the FY 1991 annual fees. The reason for this significant increase is twofold. First, the FY 1992 budgeted amount attributable to materials licensees is about 20 percent higher than the FY 1991 amount. Second, the number of licensees to be assessed annual fees in FY 1992 has decreased about 21 percent below the FY 1991 levels (from about 9,000 to about 7,000). The materials fees must be established at these levels in order to comply with the mandate of OBRA-90 to recover approximately 100 percent of the NRC's FY 1992 budget authority. A materials licensee may pay a reduced annual fee if the licensee qualifies as a small entity under the NRC's size standards and certifies that it is a small entity on NRC Form 526.

To recover the \$5.0 million attributable to the transportation class of licensees, \$1.2 million will be assessed to the Department of Energy (DOE) to cover all of its transportation casks under Category 18. The remaining transportation costs for generic activities (\$3.8 million) are allocated to holders of approved QA plans. The annual fee for approved QA plans is \$82,800 for users and fabricators and \$1,500 for users only.

The amount or range of the FY 1992 base annual fees for all materials licensees is summarized as follows:

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MATERIALS LICENSES BASE ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel.	\$2.2 million.
Part 70—Low enriched fuel.	\$683,000.
Part 40—UF ₆ conversion.	\$381,000.
Part 40—Uranium recovery.	\$58,800 to \$167,500.
Part 30—Byproduct Material.	\$430 to \$16,400.
Part 71—Transportation of Radioactive Material.	\$1,500 to \$62,800.
Part 72—Independent Storage of Spent Nuclear Fuel.	\$43,000.

¹ Excludes the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies which is \$300,000.

Paragraph (e) is amended to establish the additional charge which is added to the base annual fees shown in paragraph (d) of this final rule. This surcharge continues to be shown, for convenience, with the applicable categories in paragraph (d). The additional charge recovers approximately 40 percent of the NRC budgeted costs of \$3.8 million relating to LLW disposal generic activities because 40 percent of the LLW is generated by these licensees. Although these NRC LLW disposal regulatory activities are not directly attributable to materials licensees, the costs nevertheless must be recovered in order to comply with the requirements of OBRA-90. The Commission has continued the previous policy decision to recover approximately 40 percent of these LLW costs from materials licensees. The FY 1992 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

Category of costs	FY 1992 budgeted costs (\$ in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee, i.e., 40% of LLW disposal generic activities.	\$3.8

Of the \$3.8 million in budgeted costs shown above for LLW activities, 50 percent of the amount (\$1.9 million) are allocated to fuel facilities included in part 171 (19 facilities), as follows: \$155,100 per HEU, LEU, and UF₆ facility and \$38,800 for each of the other 9 fuel facilities. The remaining 50 percent (\$1.9 million) are allocated to the material licensees in categories that generate low level waste (1,090 licensees) as follows: \$1,600 per materials licensee except for those in Categories 4A and 17. Those

licensees that generate a significant amount of low level waste for purposes of the calculation of the \$1,600 surcharge are in fee Categories 1.B, 1.D, 2.C, 3.A, 3.B, 3.C, 3.L, 3.M, 3.N, 4.B, 4.C, 5.B, 6.A, and 7.B. The surcharge for Categories 4A and 17, which also generate and/or dispose of low level waste, is \$38,800 for Category 4A and \$36,000 for Category 17.

Of the \$6.2 million not recovered from small entities, \$8 million is allocated to fuel facilities and other materials licensees. This results in a surcharge of \$150 per category for each licensee that is not eligible for the small entity fee.

On the basis of this calculation, a fuel facility, a high enriched fuel fabrication licensee, for example, pays a base annual fee of \$2,170,000 and an additional charge of \$155,250 for LLW activities and small entity costs. A medical center with a broad-scope program pays a base annual fee of \$12,200 and an additional charge of \$1,750, for a total annual fee of \$13,950 for FY 1992.

Section 171.19 Payment

This section is revised to give credit for those partial payments made by certain licensees in FY 1992 toward their FY 1992 annual fees. The NRC anticipates that the first, second, and third quarterly payments for FY 1992 will have been made by operating power reactor licensees and some materials licensees before the final rule is effective. Therefore, NRC will credit payments received for those three quarters toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill in order to recover the full amount of the revised annual fee. As in FY 1991, payment of the annual fee is due on the effective date of the rule and interest accrues from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for the final regulation.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VII. Regulatory Analysis

With respect to part 170, this final rule was developed pursuant to title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia, *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied, 444 U.S. 1102 (1980). The Court held that (1) the NRC had the authority to recover the full cost of providing services to identifiable beneficiaries; (2) the NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations; (3) the NRC could charge for costs incurred in conducting environmental reviews required by NEPA; (4) the NRC properly included the costs of uncontested hearings and of administrative and technical support services in the fee schedule; (5) the NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and (6) the NRC's fees were not arbitrary or capricious.

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With respect to Part 171, on November 5, 1990, Congress passed Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). For FYs 1991 through 1995, OBRA-90 requires that approximately 100 percent of the NRC budget authority be recovered. To accomplish this statutory requirement, the NRC, in accordance with § 171.13, is publishing the final amount of the FY 1992 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. OBRA-90 and the Conference Committee Report specifically state that (1) the annual fees be based on the Commission's FY 1992 budget of \$512.5 million less the amounts collected from part 170 fees and the funds directly appropriated from the NWF to cover the Commission's high level waste program; (2) the annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and (3) the annual fees be assessed to those licensees the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment. Therefore, when developing the annual fees for operating power reactors the Commission continued to consider the various reactor vendors, the types of containment, and the location of the reactor. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

Part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 490 U.S. 1045 (1989).

Parts 170 and 171, which established fees based on the FY 1989 budget, were also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S. Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

VIII. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority through the assessment of user fees. This Act further requires that the NRC establish a schedule of charges that fairly and equitably

allocates the aggregate amount of these charges among licensees.

This final rule establishes the schedules of fees that are necessary to implement the Congressional mandate for FY 1992. The final rule results in an increase in the fees charged to all licensees, and holders of certificates, registrations, and approvals, including those licensees who are classified as small entities under the Regulatory Flexibility Act. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as appendix A to this final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material, Holders of certificates, registrations, approvals, Penalties.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 170 and 171.

Editorial Note: This appendix will not appear in the Code of Federal Regulations.

Appendix A to This Final Rule— Regulatory Flexibility Analysis for the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational requirements, consistent

with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act, the NRC adopted size standards for determining which NRC licensees qualify as small entities (50 FR 50241; December 9, 1985). These size standards were clarified November 6, 1991 (58 FR 56672). The NRC size standards are as follows:

(1) A small business is a business with annual receipts of \$3.5 million or less except private practice physicians for which the standard is annual receipts of \$1 million or less.

(2) A small organization is a not-for-profit organization which is independently owned and operated and has annual receipts of \$3.5 million or less.

(3) Small governmental jurisdictions are governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000.

(4) A small educational institution is one that is (1) supported by a qualifying small governmental jurisdiction, or (2) one that is not state or publicly supported and has 500 employees or less.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. For FY 1991, the amount to be collected was approximately \$445 million, and for FY 1992, the amount to be collected is approximately \$492.5 million.

To comply with OBRA-90, the Commission proposed amendments to its fee regulations in 10 CFR parts 170 and 171 on April 12, 1991 (58 FR 14870). On the basis of a careful evaluation of over 400 comments, the Commission issued a final rule on July 10, 1991 (56 FR 31472). This final rule established the methodology to be used in identifying the fees to be assessed and determined the fees that were assessed and collected in FY 1991. Consistent with the Conference Committee Report accompanying OBRA-90, the NRC fairly and equitably allocated its budget costs. This resulted in the assessment of

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annual fees for all classes of licensees, including those classes of licensees with a substantial number of small entities. Using the same methodology established in the FY 1991 rulemaking, the NRC published a proposed rule on April 29, 1992 (57 FR 18095), that would establish the fees to be assessed for FY 1992.

II. Impact on Small Entities

The comments received on the proposed FY 1991 fee rule revisions and the small entity certifications received in response to the final FY 1991 fee rule indicate that NRC licensees qualifying as small entities under the NRC's size standards are primarily those licensed under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these materials licensees, the NRC estimates that about 25 percent (approximately 2,000 licensees) qualify as small entities. Therefore, in recognition of this substantial number of small entities, the NRC requested comments from small entities on the proposed FY 1991 rule. Comments were specifically requested on (1) how the proposed regulations would affect each class of licensee and (2) how the regulations could be structured to further minimize the economic impact on the licensee but still meet the statutory mandate of OBRA-90.

For materials licensees, the increase in fees assessed in FY 1991 consisted of (1) an increase of 25 percent in the license and inspection fees assessed under 10 CFR part 170 and (2) a new annual fee assessed under 10 CFR part 171 that ranged from \$290 to over \$10,000. A number of small entities indicated that the 25 percent increase in license and inspection fees, although not desirable, would not have a significant economic impact on them. However, many other materials licensees commented that the new annual fee would have a negative economic impact on them. Therefore, the regulatory flexibility analysis prepared for the July 10, 1991, final rule, as well as this regulatory flexibility analysis, concentrates on the annual fee.

The commenters on the FY 1991 proposed fee rule indicated the following results if the proposed annual fees were not modified:

—Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a

small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put it at an extreme disadvantage with its much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.

—Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in about 10 percent of the well logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.

—Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.

—Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Although it was not clear to what extent these impacts would materialize at the time the July 10, 1991, final rule was promulgated, it was clear that the assessed annual fees would be a relatively high portion of the gross revenues of some licensees and far less of a portion for other larger material licensees. After the final rule was published, approximately 2,000 license, approval, and registration terminations were requested. Although some of these terminations were requested because the license was no longer needed or licenses or registrations could be

combined, indications are that other termination requests were due to the economic impact of the fees.

The NRC continues to receive written and oral comments from small materials licensees. These comments indicate that the \$3.5 million threshold for small entities is not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

Members of Congress, in many of the more than 100 Congressional letters the NRC has received since the July 10, 1991, final rule was published, have expressed concern about the size of the NRC annual fees and their economic impact on small entities. Some of these letters have suggested that the Commission should act to further reduce the economic impact on those licensees who conduct limited operations. The Small Business Administration (SBA), while commending the Commission for complying with and using the RFA in the final rulemaking, suggested that the Commission should act to further alleviate the impact of the fees on small businesses. The American Nuclear Society (ANS) also expressed concern about the impact of the annual fees on small entities and suggested that the Commission examine alternatives to further reduce the impacts.

Therefore, the NRC considered additional alternatives, in accordance with the RFA, to alleviate the continuing significant impact of the annual fees on a substantial number of small entities.

III. Alternatives

Commenters on the proposed rule published April 12, 1991, and comments received subsequent to publication of the final rule on July 10, 1991, and comments received on the limited amendments to the fee schedules published as a final rule on April 17, 1992 (57 FR 13625) suggested alternatives to reduce the impact on small entities. These comments are categorized as follows:

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

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The first alternative would result in the annual fee being in direct proportion to the amount of radioactivity (e.g., number of radioactive sources) possessed by the licensee, independent of whether the licensee meets the size standard for a small business. Thus, a large diversified firm that owns one source would get a reduced fee, while a small entity, whose business may depend solely on the use of radioactive materials, would pay a larger fee because it has more than one source. Thus, this alternative does not necessarily achieve the goal of the RFA to minimize the impact on small entities. The NRC also believes that this approach would not result in a fair and equitable allocation of its generic and other costs not recovered under 10 CFR part 170. Therefore, the NRC rejected this approach.

For similar reasons, the second suggested alternative, basing the fee on the frequency of use of the licensed radioactive source, would not necessarily reduce the cost for small entities that meet the size standards discussed earlier. Therefore, the NRC also rejected this approach.

The last alternative would base fees on the size standards that the NRC has used to define small entities. This alternative would ensure that any benefits from modifying the proposed fees would apply only to small entities. Three basic options, each using the NRC size standards, were considered for modifying the annual fees imposed on small entities:

- (1) Exempt all small entities which meet the size standards from annual fees.
- (2) Require small entities to pay a fixed percent of the amount of the fee in each of the specific material license fee categories.
- (3) Establish a maximum fee for small entities.

Under Option 1, all small entities would be exempted from fees. However, because small entities would not pay any of the generic costs attributable to their class of licensees, this option could be viewed as inconsistent with the objectives of OBRA-90. Under this option, all the annual fees attributable to small entities would be paid by other NRC licensees.

Under Option 2, small entities would pay a percentage (e.g., 50 percent) of the proposed fee for each specific category of materials license, regardless of how small or large the fee is. This option could result in a reduction in annual fees that are already relatively small and that do not have a significant impact on a substantial number of small entities. However, for those fee categories

assessed large annual fees, the percentage of reduction may result in assessing small entities licensed under those fee categories relatively large annual fees.

Option 3 would establish a maximum fee for all small entities. Under this option, a small entity would pay either the smaller of the annual fee for the category or the maximum small entity fee. This alternative strikes a balance between the requirements of OBRA-90 and the RFA, which are to consider and reduce, as appropriate, the impact of an agency's regulatory actions on small entities. Therefore, the NRC has adopted Option 3 as the most appropriate to reduce the impact on small entities. Commenters on the proposed fee rule for FY 1992 did not present alternatives that have not been considered previously.

IV. Maximum Fee

To implement Option 3, the NRC established a maximum annual fee for small entities. The RFA and its implementing guidance do not provide specific guidelines on what constitutes a significant economic impact on a small entity. Therefore, the NRC has no benchmark to assist in determining the amount or the percent of gross receipts that should be charged to a small entity. To determine a maximum annual fee for a small entity, the NRC examined the NRC 10 CFR part 170 license and inspection fees established in 1991 and the 1991 Agreement State fees for those fee categories that are expected to have a substantial number of small entities. Because these fees have been charged to small entities, the NRC believes that these fees do not have a significant impact on them. In fact, the NRC concluded, in issuing the July 10, 1991, final rule, that the existing materials license and inspection fees do not have a significant impact on small entities. This conclusion remains valid for the FY 1992 fee rule.

The maximum fees per year charged in 1991 by several Agreement States and by the NRC for materials license fee categories with a significant number of small entities are shown below.

	1991 Maximum average total fee per year
Washington	\$3,760
Texas	2,100
Illinois	2,000
NRC	1,590
Nebraska	1,460
New York	1,030
Utah	440

Table 1 presents the estimated total fees (part 170 plus part 171) for materials licensees, assuming maximum annual fees for small entities of \$2,000 or \$1,500 and an average number of licensing actions and inspections per year. If the maximum annual fee for small entities is established at \$2,000, the average fee per year for all of the categories would be below the approximately \$3,800 maximum fee charged by Agreement States, except for radiography, waste receipt and packaging, and broad-scope medical licensees. The broad-scope medical, and waste receipt and packaging licensees are primarily large entities. Therefore, with a \$2,000 maximum small entity annual fee and the average license and inspection fees, only small entities who are radiographers would pay slightly more than the current maximum Agreement State fee of approximately \$3,800. If the maximum fee is reduced by \$200 (from \$2,000 to \$1,800), then all categories of materials licensees, including radiographers, would pay no more for each category than the 1991 maximum Agreement State fee of about \$3,800 if the licensee qualifies as a small entity.

By establishing the maximum annual fee for small entities at \$1,800, the annual fee for many small entities will be reduced while at the same time materials licensees, including small entities, pay for most of the FY 1991 costs (\$22.3 million of the total \$27.2 million) attributable to them. Therefore, the NRC has established and will continue, for FY 1992, the maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity. Note that the costs not recovered from small entities are allocated to other materials licensees and to operating power reactors.

While reducing the impact on many small entities, the Commission agrees that the current maximum annual fee of \$1,800 for small entities, when added to the Part 170 license and inspection fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, the Commission has further reduced the impact on small entities with relatively low gross annual receipts.

Commenters have suggested that the NRC could reduce the impact of the fees for materials licensees by basing them on the licensee's nuclear capacity (e.g., the number of sources possessed, the number of hospital beds, or the amount of radioactive material possessed), or

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the frequency of use of the radioactive material. In adopting the July 10, 1991, final rule, the Commission recognized that inherent differences exist in the nuclear capacity and the frequency of source use for many of the classes of materials licensees. However, as indicated in Section III of this analysis, the Commission concludes that basing the fee on the number of sources, frequency of use, or amount of radioactive material possessed does not necessarily reduce the impact of the fees on small entities, which is the goal of the RFA. The Commission continues to believe that uniformly allocating the generic and other regulatory costs to the specific license to determine the amount of the annual fee is a fair and equitable way to recover its costs and that establishing reduced annual fees based on gross receipts (size) is the most appropriate approach to minimize the impact on small entities. Consistent with this approach, the Commission will continue the \$1,800 maximum annual fee for small entities. In addition, the Commission has created a lower tier annual fee for small entities with relatively small gross annual receipts or with a relatively small population (57 FR 13625; April 17, 1992).

To implement this action, relatively small annual receipts were defined. Based on data from an NRC survey of materials licensees and the Department of Commerce industry census, the following data shows the distribution of businesses with annual gross receipts of less than \$3.5 million.

Annual gross receipts	NRC Survey (%)	Department of Commerce
Less than \$250K	45	55
\$250-\$499K	14	22
\$500-\$749K	8	6
\$750-\$999K	9	6
\$1,000-\$3,500K	24	11

As shown, 45 to 55 percent (or about 50%) of small businesses with gross annual receipts of less than \$3.5 million have gross annual receipts that are less than \$250,000. Thus, by defining relatively small gross annual receipts as less than \$250,000, a significant number of small entities would be eligible for a further reduction of the impact of the annual fees. This level would also help ensure that those small businesses which probably would be impacted the most would pay the lower fee.

A similar approach was used to define a relatively small governmental jurisdiction. Using 1990 data from the National Association of Counties, the distribution for counties located in non-Agreement States with a population of less than 50,000 shows that a population level of less than 20,000 would ensure that at least 50 percent of the small counties would be eligible for reduced fees (See the data presented below). This would also ensure that at least 50 percent of other governmental jurisdictions (cities, towns, villages, school districts, etc.) could also receive the benefits because these other jurisdictions are typically smaller than counties.

Population	Percent of total
Less than 5,000	10
5,000-9,999	18
10,000-14,999	16
15,000-19,999	14
20,000-24,999	9
25,000-50,000	33

The NRC also determined the amount of the annual fee that should be assessed to lower tier small entities (less than \$250,000 for small businesses and small non-profit organizations, or less than 20,000 population for small

governmental jurisdictions). In establishing the annual fee for lower tier small entities, the Commission retained a balance between the objectives of the RFA and OBRA-90. This balance can be measured by (1) the amount of costs attributable to small entities that is transferred to larger entities (the small entity subsidy); (2) the total annual fee small entities pay, relative to this subsidy; and (3) how much the annual fee is for a lower tier small entity. Nuclear gauge users were used to measure the reduction in fees because they represent about 40 percent of the materials licensees and most likely would include a larger percentage of lower tier small entities than would other classes of materials licensees.

Before presenting alternative fees, the NRC notes that the number of licensees filing small entity certifications for the FY 1991 annual fees is lower than originally estimated. The NRC estimated 3,000 certifications in the July 10, 1991, rule, which would have resulted in an estimated cost of about \$5 million in the small entity subsidy. On the basis of the response to the FY 1991 billings, the NRC's estimate is now that there are about 2,000 small entities.

The following data shows four different lower tier small entity fees, their impact on the licensees, and their impact on the balance between OBRA-90 and RFA.

Alternative lower tier small entity annual fee	Reduction in fee for gauge users (%)	Estimated FY 1992 small entity subsidy (\$ M)	Estimated FY 1992 annual fees paid by small entities (\$ M)
\$1,200	30	\$5.0	\$4.5
900	50	5.3	4.2
700	60	5.5	4.0
400	75	6.0	3.5

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Each of the alternative lower tier annual fees reduces the annual fee for qualifying nuclear gauge licensees. However, the Commission established an annual fee of \$400 for the lower tier small entities because this amount should ensure that the lower tier small entities receive a reduction (75 percent for small gauge users) substantial enough to mitigate any severe impact. The amount of the small entity subsidy resulting from this fee is equivalent to the amount estimated in the July 10, 1991, final rule, increased by 20 percent to account for the FY 1992 budget increase and the reduced number of materials licensees resulting from license terminations after the FY 1991 rule became effective. Although the other reduced fees would result in lower subsidies, the Commission believes that the amount of the associated annual fees, when added to the license and inspection fees, would still be considerable for small businesses and organizations with gross receipts that are less than \$250,000 or for governmental entities in jurisdictions with a population of less than 20,000.

V. Summary

The NRC has determined the annual fee significantly impacts a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirement to consider means of reducing the impact of the proposed fee on small entities. On the basis of its regulatory flexibility analysis and the April 17, 1992, final rule the NRC concluded that a maximum annual fee of \$1,800 for small entities and a lower tier small entity annual fee of \$400 for small businesses and non-profit organizations with gross annual receipts of less than \$250,000, and small governmental entities with a population of less than 20,000, will reduce the impact on small entities. At the same time, these reduced annual fees are consistent with the objectives of OBRA-90. Thus, the revised fees for small entities maintain a balance between the objectives of OBRA-90 and the RFA. The NRC has used the methodology and procedures developed for the FY 1991 fee rule in this rule establishing the FY 1992 fees. Therefore, the analysis and conclusions established in the FY 1991 rule remain valid for this final rule.

TABLE 1.—1991 AVERAGE TOTAL SMALL ENTITY FEES PER YEAR

License fee category	Total small entity fee ¹	
	Max annual fee = \$2K	Max annual fee = \$1.5K
Special Nuclear Material (SNM):		
1C. Industrial Gauges.....	\$1,672	\$1,672
ID. All other SNM.....	2,506	2,006
Source Material:		
2B. Shielding.....	463	463
2C. Other Source Materials.....	2,867	2,367
Byproduct Material:		
3A. Manufacturing—Broad.....	3,560	3,060
3B. Manufacturing—Other.....	3,343	2,843
3C. Radiopharmaceuticals.....	3,207	2,707
3D. Radiopharmaceuticals—Manufacturing.....	2,677	2,177
3E. Irradiators—Self-shield.....	1,699	1,699
3F. Irradiators—< 10,000 Ci.....	2,623	2,123
3G. Irradiators—> 10,000 Ci.....	3,840	3,340
3H. Exempt distribution—Device review.....	2,815	2,315
3I. Exempt distribution—No device review.....	2,682	2,182
3J. Gen. license—Device review.....	2,679	2,179
3K. Gen. license—No device review.....	2,708	2,208
3L. R&D—Broad.....	3,210	2,710
3M. R&D—Other.....	3,050	2,550
3N. Service license.....	2,733	2,233
3O. Radiography.....	4,050	3,550
3P. All other byproduct materials.....	2,120	2,120
Waste Disposal and Processing:		
4B. Waste receipt/packaging.....	4,680	4,180
4C. Waste receipt—prepackaged.....	3,216	2,716
Well Logging:		
5A. Well logging.....	3,207	2,707
Nuclear Laundry:		
6A. Nuclear laundry.....	3,030	2,530
Human Use of Byproduct, Source, or SNM:		
7A. Teletherapy.....	3,788	3,288
7B. Medical—broad.....	4,360	3,860
7C. Medical other.....	3,130	2,630
Civil Defense:		
8A. Civil defense.....	1,789	1,789
Device, Product, or Sealed Source Safety Evaluation:		
9A. Device/product—Broad.....	3,200	2,700
9B. Device/product—Other.....	2,580	2,080
9C. Sealed sources—Broad.....	1,530	1,530
9D. Sealed sources—Other.....	770	770

¹ Based on average 10 CFR part 170 fees plus maximum annual fees.

57 FR 39421
Published 8/31/92

10 CFR Part 171

RIN 3150-AE20

Revision of Fee Schedules; 100% Fee Recovery, FY 1992

Correction

In rule document 92-17027 beginning on page 32691 in the issue of Thursday, July 23, 1992, make the following corrections:

1. On page 32694, in the third column, in the first full paragraph, in the sixth line, "1UF₆" should read "UF₆".

2. On page 32701, in Table IV, remove the "Note:" appearing between footnotes 1 and 2 and insert the following information at the end of Table IV.

TOTAL BASE FEE AMOUNT ALLOCATED TO POWER REACTORS	\$389.8 million *
LESS ESTIMATED PART 170 POWER REACTOR FEES	80.2 million
PART 171 BASE FEES FOR OPERATING POWER REACTORS	\$309.6 million

3. On page 32703, in Table V, in the 3d column, in the 15th line, "2,810,D00" should read "2,810,000".

4. On page 32704, in Table VI, in the 2d and 3d columns, in the 11th line, "2,154" and "53.4" should appear in the 4th and 5th columns, respectively.

§ 171.16 [Corrected]

5. On page 32715, in § 171.16(d), in the table, in 3C, in the second line, "radiopharmaceuticals" was misspelled.#

58 FR 7715
Published 2/9/93
Effective 7/1/93

Licenses and Radiation Safety
Requirements for Irradiators

See Part 36 Statements of Consideration

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58 FR 38666
Published 7/20/93
Effective 8/19/93

10 CFR Parts 170 and 171

RIN 3150-AE49

**FY 1991 and 1992 Final Rule
Implementing the U.S. Court of
Appeals Decision and Revision of Fee
Schedules; 100% Fee Recovery, FY
1993**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the licensing, inspection, and annual fees charged to its applicants and licensees. The amendments are necessary to implement Public Law 101-508, enacted November 5, 1990, which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year (FY) 1993 less amounts appropriated from the Nuclear Waste Fund (NWF). The amount to be recovered for FY 1993 is approximately \$518.9 million.

In addition, this rule implements a decision of the U.S. Court of Appeals for the District of Columbia Circuit dated March 16, 1993, that remanded to the NRC portions of the FY 1991 annual fee rule. The remanded portions pertain to: (1) The NRC's decision to exempt from annual fees nonprofit educational institutions, but not other enterprises, on the ground in part that educational institutions are unable to pass through the costs of annual fees to their

customers; and (2) the Commission's decision to allocate generic costs associated with low-level waste (LLW) disposal by groups of licensees, rather than by individual licensee. Because the court's decision was also extended to cover the NRC's FY 1992 annual fee rule by subsequent court order, this final rule addresses the FY 1992 rule as well. In this final rule, the NRC has retroactive to FY 1991, revoked the exemption from annual fees for nonprofit educational institutions and has changed its method of allocating the budgeted cost for low-level waste activities. These approaches are consistent with the court's decision.

EFFECTIVE DATE: August 19, 1993.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone 301-492-4301.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Responses to comments.
- III. Final action—changes included in final rule.
- IV. Section-by-section analysis.
- V. Environmental impact: Categorical exclusion.
- VI. Paperwork reduction act statement.
- VII. Regulatory analysis.
- VIII. Regulatory flexibility analysis.
- IX. Backfit analysis.

I. Background

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), enacted November 5, 1990, requires that the NRC recover approximately 100 percent of its budget authority less the amount appropriated from the Department of Energy (DOE) administered NWF, for FYs 1991 through 1995 by assessing fees to NRC applicants and licensees. Public Law 101-576, the Chief Financial Officers Act of 1990 (CFO Act), enacted November 15, 1990, requires that the NRC perform a biennial review of its fees and other charges imposed by the agency and revise those charges to reflect costs incurred in providing those services.

The NRC assesses two types of fees to recover its budget authority. First, license and inspection fees, established at 10 CFR part 170 under the authority of the Independent Offices Appropriation Act (IOAA) (31 U.S.C. 9701), recover the NRC's costs of providing individually identifiable services to specific applicants and licensees. The services provided by the NRC for which these fees are assessed are generally for the review of applications for the issuance of new licenses or approvals, amendments to or renewal of licenses or approvals, and inspections of licensed activities. Second, annual fees, established at 10 CFR part 171 under the authority of OBRA-90, recover generic and other regulatory costs not recovered through 10 CFR part 170 fees.

Subsequent to enactment of OBRA-90, the NRC published three final fee rules after evaluation of public comments. On July 10, 1991 (56 FR 31472), the NRC published a final rule in the Federal Register that established the part 170 professional hourly rate and the materials licensing and inspection fees, as well as the part 171 annual fees to be assessed to recover approximately 100 percent of the FY 1991 budget. In addition to establishing the FY 1991 fees, the final rule established the underlying basis and method for determining the 10 CFR part 170 hourly rate and fees, and the 10 CFR part 171 annual fees. The FY 1991 rule was challenged in Federal court by several parties; the U.S. Court of Appeals for the District of Columbia Circuit rendered its decision on March 16, 1993. The court decision was also extended to cover the FY 1992 fee rule by court order dated April 30, 1993. The court case and the NRC's response to the issues remanded by the court are discussed in Section II of this final rule.

On April 17, 1992 (57 FR 13625), the NRC published in the Federal Register two limited changes to 10 CFR parts 170 and 171. The limited changes became effective May 18, 1992. The limited change to 10 CFR part 170 allowed the NRC to bill quarterly for those license

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fees that were previously billed every six months.

The limited change to 10 CFR part 171 adjusted the maximum annual fee of \$1,800 assessed a materials licensee who qualifies as a small entity under the NRC's size standards. A lower-tier small entity fee of \$400 per licensed category was established for small businesses and non-profit organizations with gross annual receipts of less than \$250,000 and small governmental jurisdictions with a population of less than 20,000.

On July 23, 1992 (57 FR 32691), the NRC published a final rule in the *Federal Register* that established the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1992. The basic methodology used in the FY 1992 final rule was unchanged from that used to calculate the 10 CFR part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR part 170, and the 10 CFR part 171 annual fees in the final rule published July 10, 1991 (56 FR 31472).

Section 2903(c) of the Energy Policy Act (enacted in October 1992) requires the NRC to undertake a broad review of its annual fee policies under section 6101(c) of OBRA-90, solicit public comment on the need for policy changes, and recommend changes in existing law to the Congress that the NRC finds are needed to prevent the placement of an unfair burden on certain NRC licensees. To comply with the Energy Policy Act requirements, the NRC published for public comment a separate notice in the *Federal Register* on April 19, 1993 (58 FR 21116). The 90-day public comment period for this notice expires on July 19, 1993.

On April 23, 1993 (58 FR 21662), the NRC published the proposed rule for FY 1993 establishing the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1993, less the appropriation received from the NWF. The basic methodology used in the proposed rule was unchanged from that used to calculate the 10 CFR part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR part 170, and the 10 CFR part 171 annual fees set forth in the final rules published July 10, 1991 (56 FR 31472) and July 23, 1992 (57 FR 32691). Because of the need to collect annual fees for FY 1993 prior to October 1, 1993, the Commission is promulgating this final rule before it completes the user fee review mandated by the Energy Policy Act. Changes in Commission policy resulting from that review will be incorporated in fee

schedules promulgated in future years. The NRC placed a copy of the workpapers relating to the proposed rule in its Public Document Room at 2120 L Street, NW., Washington, DC, in the lower level of the Gelman building. Workpapers relating to this final rule will also be placed in the Public Document Room.

II. Responses to Comments

The NRC received more than 500 public comments on the proposed rule. Although the comment period expired on May 24, 1993, the NRC reviewed and evaluated all comments received prior to June 25, 1993. Copies of all comment letters received are available for inspection in the NRC Public Document Room, 2120 L Street, NW. (lower level), Washington, DC.

Many of the comments were similar in nature. For evaluation purposes, these comments have been divided into two groups. The first group deals with the remand issues of the U.S. Court of Appeals for the District of Columbia Circuit case decided on March 16, 1993. The second group deals with the remaining comments on the FY 1993 proposed rule. The comments are as follows:

A. Comments Regarding U.S. Court of Appeals for the District of Columbia Circuit Remand Decision—FY 1991—FY 1993 Fee Schedules

1. Taking Account of Licensees' Ability To Pass Through Fee Costs to Customers

Comment. A number of comments were received on the question of setting NRC annual fees in part on the basis of whether the licensee can passthrough the costs of those fees to its customers. The NRC had proposed abandoning consideration of passthrough capability, a factor it previously had used in part to justify its fee exemption for certain nonprofit educational institutions, on the grounds that to evaluate each licensee's passthrough ability was an extremely difficult administrative task that required expertise and information unavailable to the agency.

Many commenters supported the NRC's approach of not setting any license fees on the basis of passthrough, due to the difficulties inherent in its use. One stated that to do otherwise would be cumbersome and subjective, and cause fees to vary in response to changing market conditions. Another commenter noted that if passthrough were used, the exempted fees would almost certainly be paid by power reactors, which have trouble passing on their costs due to fee schedules established by public utility

commissions. One commenter stated that if foreign competition created a passthrough problem, Congress and not the NRC was the proper forum in which to seek relief for passthrough considerations.

Another group of commenters disagreed with the NRC's suggested approach, and argued that passthrough should be considered when devising a fee schedule. Many domestic uranium producers told the NRC that their industry cannot passthrough costs to customers due to foreign competition, lower demand and long-term fixed price contracts. Another commenter suggested that nuclear medicine departments should be eligible for exemption from fees due to passthrough considerations. They are often reimbursed for patient care by the Health Care Financing Administration, which does not take NRC fees into account. Commenters also claimed that, contrary to the NRC's stated position, the agency does have the necessary expertise to evaluate licensees' passthrough capacity and must do so under both OBRA-90 and the March 16, 1993, Court of Appeals decision. One commenter stated that the NRC could simply request an affidavit from the licensee explaining how the licensee was unable to passthrough its fee costs.

Response. After carefully considering the comments received on this difficult issue, the Commission has decided to adopt its proposal not to use passthrough as a factor for any licensee when setting that licensee's fee schedule. The Commission recognizes that all licensees dislike paying user fees and that such fees must be taken into account as part of running a business or other enterprise. However, the Commission does not believe it has the expertise or information needed to undertake the subtle and complex inquiry whether in a market economy particular licensees can or cannot easily recapture the costs of annual fees from their customers. As it stated in the proposed rule, the Commission "is not a financial regulatory agency, and does not possess the knowledge or resources necessary to continuously evaluate purely business factors. Such an effort would require the hiring of financial specialists and * * * could (lead to) higher fees charged to licensees to pay for an expanded bureaucracy to determine if * * * licensee(s) can pass on the cost of (their) fees." (58 FR 21662).

Although in the final FY 1991 annual fee rule the Commission stated that passthrough was a factor justifying the exemption of nonprofit educational institutions from fees, the Commission

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had no empirical data on which it based its belief that colleges and universities could not pass through fee costs. Rather, it acted primarily on policy grounds, in an effort to aid nuclear-related education for the benefits it provides to the nuclear industry and society as a whole. On further reflection, the Commission now acknowledges that these institutions are not structurally incapable of compensating for increased costs, such as NRC fees, by means of higher tuition (prices) or budget cuts, in the same manner as profit-oriented licensees.

The Commission disagrees with those commenters who claim the NRC must by law set fees at least in part on the basis of passthrough considerations. In its decision, the D.C. Circuit clearly stated that "(t)he statutory language and legislative history (of OBRA-90) do not, in our view, add up to an inexorable mandate to protect classes of licensees with limited ability to pass fees forward." *Allied-Signal* at 5. The court went on to say that "(b)ecause (price) elasticities are typically hard to discover with much confidence, the Commission's refusal to read (OBRA-90) as a rigid mandate to do so is not only understandable but reasonable." *Allied-Signal* at 6-7. The Commission agrees with these observations, which defeat the suggestion that the Commission has a statutory obligation to exempt licensees who cannot pass through their fees to customers.

After full consideration of the passthrough question, the Commission has concluded that it cannot set fees using passthrough considerations with reasonable accuracy and at reasonable cost even for classes of licensees with few members. If the Commission were to attempt such an endeavor, it would require a comprehensive, on-going audit of each licensee's business and the industry of which it was a part. The Commission would have to examine tax returns, financial statements, and other commercial data that some licensees might be reluctant to reveal. The Commission could not simply rely on self-serving affidavits or statements by licensees themselves on passthrough problems, without jeopardizing the integrity of the 100 percent fee recovery system mandated by the Congress. Instead, the Commission would have to verify its licensees' submissions independently.

Even if the Commission could obtain all the necessary information, it does not have the business expertise or the resources to evaluate accurately that information in order to make a passthrough determination. Because this is the case, the Commission will not

establish fees or base any exemptions on the alleged inability of a licensee to pass through fee costs to its customers.

This policy applies to all licensees, including those companies with long-term, fixed price contracts. In that regard, the Commission notes that companies who do business using such contracts are continuously liable for changes in the tax codes and other Federal and State regulations that occur subsequent to the commencement of these contracts, like all other enterprises active in the American economy. The Commission believes the current situation is no different. The Commission is sympathetic to licensees' complaints on the passthrough issue, but believes that it has no other choice but to pursue the course of action it has chosen.

2. Fee Exemption for Nonprofit Educational Institutions

Comment. The Commission solicited comments on whether to continue the exemption from fees for nonprofit educational institutions. The Commission had proposed continuing the exemption solely on the grounds that nuclear-related education provides a benefit both to the nuclear industry and society at large. See Final FY 1991 Rule, 56 FR 31477 (1991). Responding to the court's suggestion that educational licensees might be differentiated from profit-oriented or other licensees, the Commission requested in particular comments on whether nuclear education might "yield exceptionally large externalized benefits"—i.e., exceptional benefits that "cannot be captured in tuition or other market prices." *Allied-Signal* at 8. The Commission also "invite(d) public comments on whether to discontinue the educational exemption" entirely. 58 FR 21664 (1993).

Many of the comments received on this issue supported retaining the exemption for nonprofit educational institutions. These commenters, mostly colleges and universities, asserted that they provide a great benefit to society through nuclear-related education, and that they would be hard-pressed to sustain their programs in the face of newly imposed fees. Some claimed that if the exemption were removed, they would be forced to shut down or drastically curtail their nuclear education programs. One commenter suggested that if fees were to be charged, that it be done on a graduated basis; presumably to lessen the burden on certain licensees. Another commenter made the point that fees should not be charged to programs receiving support from the Federal government in other

ways. Some commenters urged not only keeping the exemption in place, but expanding it to include museums and other nonprofit institutes. No commenter, however, addressed in any meaningful detail the question whether educational activities yielded "exceptionally large externalized benefits", the distinction emphasized by the court as a possible alternative justification for special generic treatment of educational institutions.

Other commenters instead argued that the generic educational exemption should be abandoned. A nonprofit institute asserted that if it had to pay fees to the NRC, others should as well. It believed that if all nonprofit educational institutions paid "their fair share," the fee burden on those institutions would be lowered. Similarly, a nonprofit hospital called for ending the educational exemption to create a more equitable fee schedule. The commenter also believed that the exemption penalized those nonprofit hospitals that were not covered by the educational exemption competing for scarce research funds and limited numbers of patients. Another commenter, a utility, made the argument that the NRC should only be concerned with guarding the public health and safety, not subsidizing colleges and universities. It too called for an end to the exemption. And a major fuel facility asserted that the NRC had no discretion to exempt colleges and universities from paying fees, and that the exemption should be discontinued.

Response. The Commission finds the choice before it on this issue a difficult one. As a general principle, the Commission favored a fee schedule under which each NRC licensee, including nonprofit educational institutions, pays its fair share of NRC costs in accordance with the mandate of Congress. Under such an approach, the NRC does not have to make difficult normative judgments regarding the relative social value of the benefits provided by the activities of NRC's licensees or equally difficult economic judgments regarding the impact of annual fees on the availability of those benefits. Nevertheless, the Commission recognizes that imposing fees on beneficial activities creates some risk, often very difficult to ascertain quantitatively, of cutting back on benefits. The Commission is reluctant, in particular, to impose fees that could result in diminishing the already dwindling number of university programs devoted to the nuclear sciences. But the Commission is not in a position to analyze with any

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confidence the potential burden on educational benefits in comparison with the burdens that fees will impose on the beneficial activities of other licensees.

In the wake of the court's decision, the Commission issued a proposed rule that would continue in place the educational exemption. The Commission now has reluctantly concluded that in view of the court decision and the administrative record developed during the comment period, it cannot justify a generic "educational" exemption for FY 1993. Nor can it adequately rationalize the generic exemption previously allowed in FY 1991 and FY 1992.

Although the Commission had anticipated that colleges and universities benefiting from the exemption would take up the Commission's invitation to discuss and elaborate upon the "exceptionally large externalized benefits" point made by the court, they did not do so. Nor does the Commission have in hand sufficient economic data, analyses, or other support for issuing an across-the-board exemption to nonprofit educational institutions. As a result, the Commission lacks an adequate administrative record on which to base a continued generic exemption of all nonprofit educational institutions.

This is especially true in light of the court decision, which forced the Commission to acknowledge the serious weakness of, and abandon, the passthrough argument formerly made on behalf of these institutions. As the Commission has stated above, that argument was not based on empirical data. Passthrough ability in any event is an unworkable standard for setting annual fees. Without either the passthrough rationale or a persuasive "exceptionally large externalized benefits" rationale, the Commission has no choice but to charge colleges and universities fees appropriate to their status as licensees, just as it charges other classes of licensees who can and do claim that they provide important benefits to society that are worthy of generic fee exemptions.

The Commission acknowledges the seeming paradox in charging fees to a program that receives support from other agencies of the Federal government. However, it believes that it has no choice, given 100 percent recovery requirements and fairness and equity, but to charge all licensees whenever possible. For instance, the NRC levies both annual and user fees on all other NRC licensees including nonprofit, tax-exempt entities such as hospitals, museums, and institutes. Furthermore, the NRC also directly

charges annual fees to other Federal agencies such as the Department of Veterans Affairs, the National Institutes of Health and the Department of Defense. Charging annual fees to colleges and universities is consistent with the Commission's preferred approach to fee recovery and Congressional guidance that NRC establish a schedule of annual charges that fairly and equitably allocates the aggregate amount of the charges among licensees and, to the maximum extent practicable, reasonably reflects the cost of providing services to such licensees or classes of licensees.

The Commission was also struck by the comments that attacked the educational exemption and urged its abandonment. Because those arguments were made by organizations such as hospitals, utilities and fuel facilities that presumably benefit from an educated nuclear workforce, the Commission read these comments as an indication that at least some assumed beneficiaries of education do not view it quite so positively as the Commission had believed. This in turn strengthened the Commission's view that the mere observation that education benefits society is not alone enough to support a generic exemption.

The Commission, however, is not unsympathetic to the problems this new course of action is likely to cause many formerly exempt nonprofit educational institutions. Because this is a change in policy, the Commission would like to call to the attention of affected licensees the possibility of paying the annual fee on an installment basis under 10 CFR 15.35(b), subject to agency approval and demonstrated need on the part of the requesting licensee.¹

The Commission also notes that, like all other licensees, affected nonprofit educational licensees can request individual exemptions, under 10 CFR 171.11(b) or (d) for university research reactors or materials licensees. Some commenters expressed particular concern over the fate of research reactors. Any licensee seeking an individual exemption under the "public interest" standard in § 171.11(b) would be expected, as part of its showing that exceptional treatment is justified, to demonstrate severe financial hardship resulting from the newly imposed annual fees as well as significant "externalized benefits". This could include benefits to other NRC licensees.

¹ Requests to pay fees on an installment basis must be submitted in writing to the NRC, Office of the Controller, Division of Accounting and Finance, Washington, DC 20555. All requests must furnish satisfactory evidence of inability to pay the debt in one lump sum.

The Commission will be examining the general issue of exempting nonprofit educational institutions as part of its Energy Policy Act-mandated review, and may choose following that review to modify further its policy in this area or to recommend Congressional action. For FY 1993, however, formerly exempt nonprofit educational institutions must pay annual fees based on the preexisting fee categories into which they fall.

On a practical note, the Commission has concluded that by eliminating the exemption for past years, it must refund a portion of the surcharge paid by those reactor licensees that would otherwise have been paid by the colleges and universities. The Commission will not (and by law cannot) retroactively collect these fees from the nonprofit educational institutions for FY 1991 and FY 1992. In the near future, the NRC will separately publish final revised FY 1991 and FY 1992 schedules for reactor surcharges resulting from the revocation of this exemption. Requests for refunds should not be filed with the NRC prior to publication of these schedules.

Finally, the Commission recognizes that its action in this rule is limited only to revoking the exemption for nonprofit educational institutions from 10 CFR part 171 annual fees. The decision leaves intact the nonprofit educational exemption contained in 10 CFR part 170 (from IOAA fees). The Commission is not revoking that exemption at this time because it did not seek comments on that approach in this rulemaking. The Commission intends to evaluate that issue, as well as the wisdom of its decision regarding part 171 fees, as part of its Energy Policy Act review.

Obviously, after that review, if the Commission continues to believe it is appropriate to charge nonprofit educational institutions part 171 annual fees, there is a substantial likelihood that this approach will be adopted with regard to part 170 IOAA fees as well.

3. Allocation of Low-Level Waste Costs

In FY 1991 and FY 1992, the NRC allocated low-level waste (LLW) costs by the amount of waste disposed per class of licensee, dividing the costs equally within each class. This method of cost allocation was challenged by the petitioners in *Allied-Signal*. In its decision, the court remanded the issue of LLW cost allocation to the Commission. The court stated that the NRC's class-based LLW approach required it to attempt to allocate those costs licensee-by-licensee. An integral part of the court's rationale was that it believed that NRC must have individual licensee data on LLW disposal, and if so there was no reason not to break down

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this cost allocation from the class level to the individual level.

In response to the court decision, the NRC in its proposed FY 1993 annual fee rule requested comments on four alternative methods of LLW cost allocation and possible variations of those alternatives. A number of comments were received.

Comment. Comments were received in support of each of the four alternatives for allocating Low-Level Waste (LLW) costs that were included in the proposed rule. Some commenters also recommended variations of the four basic alternatives. The alternatives were:

(1) Assess all licensees that generate LLW a uniform annual fee.

(2) Allocate the LLW budgeted cost based on the amount of LLW disposed of by groups of licensees and assess each licensee in a group the same annual fee as was done in the FY 1991 and FY 1992 rules.

(3) Assess each licensee an annual fee based on the amount of waste generated/disposed by the individual licensee, as was suggested by Allied-Signal and by the court.

(4) Base the LLW Annual Fees on Curies Generated or Disposed of

There was no consensus among the commenters regarding a preferred option. Again, the Commission is faced with a difficult policy decision.

Commenters that supported Alternative 1 (uniform fee) argued primarily that the real benefit of LLW disposal is merely the availability of such services and all generators have an equal need for this availability. In support of this argument, commenters noted that if one class of licensee (e.g., power reactors) did not exist, there would still be the same need for a regulatory framework for future disposal, and the need is independent of the amount of waste being generated today. The cost relationship to the volume of waste disposal, according to these commenters, is a contractual matter best handled between the vendor and customer. That is, the benefit will be reflected in the fees that those licensees will be required to pay to the vendors when disposing of their LLW. Most of the commenters that supported Alternative 1 believed that Alternatives 3 and 4 were not acceptable because of the problems associated with the equitable distribution of the annual fee to all applicable licensees. Commenters noted that the inequities in this approach are that some licensees are storing, either by choice or regulation, their LLW. Some commenters believe that Alternative 2 is not equitable, given the uniform need among all classes of

LLW generators for a regulatory framework for future LLW disposal.

Several commenters supported Alternative 2 (uniform fee by groups of licensees) as the best and fairest method among the four alternatives. One commenter stated that this is the best alternative in terms of its fairness to licensees of different sizes and different types of waste, while not being too cumbersome to effectively implement. They indicated that, although not exact by specific licensee, Alternative 2 provides enough information to reasonably provide an equitable method for allocating fees at the present time among those who will derive future benefits from regulatory services associated with low-level waste. Commenters noted that the current volume of LLW disposed of by each class is the best gross indicator of the relative future benefit of LLW disposal sites to licensees. Other commenters preferred Alternative 2 because it is the clearest and most predictable to the waste generator and easiest for the NRC to administer. These commenters also noted that calculating the annual LLW surcharge based on individual licensees' current volume of waste (Alternative 3) would be administratively burdensome and might not bear a close relationship to the amount of waste those licensees will generate in the future.

Several commenters supported Alternative 3, which would base the LLW surcharge on the amount of waste generated or disposed of by each individual licensee. These commenters believe that Alternative 3 should be adopted since the NRC has not provided sufficient reasons to deviate from the individualized approach suggested in the decision by the U.S. Court of Appeals. They state that the other three alternatives are unfair.

One commenter supported Alternative 4 which would base the LLW surcharge on the curies of waste generated. Other commenters, however, indicated that curies generated is not a good indicator of the regulatory benefits of the NRC regulatory program. One commenter suggested a combination of Alternatives 1, 3 and 4 such that the fee assessment for LLW would include a minimum fee for all users with the largest portion of the fee being calculated based on volume generated with an additional assessment for activity (Class B and C waste) which would require stricter long term monitoring at any storage facility.

Response. Based on a careful evaluation of the comments, the Commission concludes that, on balance, a variant of Alternative 1 provides a practical, fair and equitable allocation of

the NRC LLW costs to the various NRC licensees. The Commission has concluded that there should be two LLW surcharges—one for large waste generators and another for small waste generators. This conclusion reflects (1) the purpose of NRC activities whose costs are included in the surcharge; (2) existing data on which to base the fees; and (3) the Commission's duty to allocate fee burdens fairly and equitably.

The purpose of FY 1991–FY 1993 LLW waste activities is to implement the Low-Level Radioactive Waste Policy Amendments Act of 1985, and the Atomic Energy Act, which require the NRC to perform certain generic activities. These activities include developing rules, policies and guidance, performing research, and providing advice to and consultation of LLW compacts and Agreement States who will license some of the future LLW disposal sites. The budgeted costs for most of NRC generic activities are generally recovered in annual fees from the class of licensees for whom the activities are used to directly regulate. (For example, reactor research is recovered from reactor licensees, and guidance and rule development for regulation of uranium producers is recovered from uranium recovery licensees.) However, for LLW generic activities, there is no disposal site licensed by the NRC from whom to recover the generic budgeted costs that must be incurred. Since there is no LLW disposal site licensee, these costs must be allocated to other NRC licensees in order to recover 100 percent of the NRC budget as required by OBRA-90. In addition, the LLW costs budgeted by NRC in FY 1991, FY 1992, and FY 1993 are not for the wastes being disposed during these years or prior years, but are devoted to creating the regulatory framework for licensing and regulating future LLW disposal sites.² In fact, the sites where LLW was disposed of in FY 1991–1993 are licensed and regulated by Agreement States, not the NRC.

Given the 100 percent budget recovery requirement of OBRA-90, and the fact that there are no NRC LLW licensees from whom to recover FY 1991–1993 budgeted costs for NRC generic activities, the basic question is how should NRC allocate these costs. Congress spoke briefly to this issue in developing OBRA-90 by recognizing that certain expenses cannot be attributed directly either to an

²In the FY 1991 rule, the NRC indicated that "once the NRC issues a license to dispose of byproduct LLW, the Commission will reconsider the assessment of generic costs attributable to LLW disposal activities" (56 FR 31487; July 10, 1991).

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individual licensee or to classes of NRC licensees. The conferees intended that the NRC fairly and equitably recover these expenses from its licensees through the annual charge, even though these expenses cannot be attributed to individual licensees or classes of licensees. These expenses may be recovered from those licensees whom the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment. 1356 Cong Rec. at H12692, 3.

Consistent with the Congressional guidance, the Commission believes that the LLW surcharge should be allocated based on the fundamental concept that all classes of NRC licensees which generate a substantial amount of LLW should be assessed annual fees to cover the agency's generic LLW costs.³ Each of the alternatives in the proposed rule which were endorsed by various commenters, supporters, to varying degrees, this allocation concept and provides various degrees of fairness and equity because of available data and the inherent limitations of the allocation method.

Alternative 4's "curie" approach had little support from the commenters and the Commission believes it is the least preferable alternative since volume is at least as good of an indicator, indeed probably a better indicator, of the benefits of the NRC generic low-level waste activities. In addition, cost allocation by volume is more practical to implement.

Alternatives 3 and 4, reallocating LLW disposal costs on an individual rather than class basis, may appear to some to be fairer than the current system, since each licensee would pay a fee more precisely tied to the amount of waste it currently generates or disposes of. The Commission, however, sees significant problems in an individualized approach, given the data the NRC has for FYs 1991-1993. As indicated by some of the commenters, the NRC has data on the amount of LLW disposed of by individual licensees. However, currently the NRC does not have data on the amount of waste generated for each of the over 1,000 individual licensees that generate LLW.⁴ The Commission also believes that it is not practical, and probably not even

possible, to determine retroactively the amount of waste generated by each individual licensee for FY 1993 and prior years since the time to capture this data has passed for many licensees.

The Commission has concluded that using available individual waste disposal data (Alternative 3) would result in grossly unfair annual fees since some licensees that generate LLW would not pay any fees. This would occur because licensees that generate LLW can dispose of or temporarily store the LLW. Those licensees who temporarily store their waste would not pay an annual fee if individual disposal data are used. Some licensees store their LLW because they are prohibited from disposing of their waste or because they choose not to do so for the near term. Increasingly, for example, licensees (such as those in Michigan) cannot dispose of their waste because of restrictions in the LLW Policy Act.⁵ Thus, given the current situation with LLW disposal in the U.S., basing fees on individual disposal data could, in the Commission's view, result in some licensees paying the full generic costs of future LLW licensing, and some paying nothing while all licensees that generate LLW will benefit from the NRC generic LLW activities. In addition to being unfair, using individual disposal data would result in the significant administrative burden of "translating" raw and coded disposal data into usable licensee-by-licensure bills.

Some commenters point out that although the use of disposal data could result in some licensees paying no fees; they would be charged disproportionately high annual fees in the future when they do dispose of their LLW. This is not necessarily true, since many of the ongoing LLW generic activities are not recurring-type activities. For example, once the research, performance assessment, or development of rules and regulatory guides is completed, the staff does not expect to perform that work again in the future. Therefore, if licensees pay in the

future they would not be required to pay for these generic regulatory costs.

Alternative 2's class-based approach would eliminate the major negative associated with Alternative 3. That is, each licensee that generates waste would pay an annual fee to recover the NRC costs that are necessary to establish and maintain a regulatory program for LLW disposal. The annual fee would be based on the average amount of waste disposed per licensee in a class. Stated another way, the average LLW disposed per class of licensees would be used as a proxy for generation. Alternative 2, however, has drawbacks for those classes with a relatively small number of licensees, such as the fuel facilities. With a small number of licensees in a class, abnormally high or abnormally low volumes of LLW disposed of by one or two licensees may skew the average so that it would no longer be a good proxy for LLW generation for that class.

As several commenters noted, Alternative 1's flat fee approach is consistent with the purpose of the FY 1991-1993 LLW activities. However, the guidance from the Congress of fairness and equity dictates that the NRC not charge the same fee for those groups of licensees that are likely to generate significantly different amounts of LLW. Because the NRC does not have sufficient data on LLW generated to make a refined differentiation by individual licensee or small groups, the Commission believes that fairness and equity can best be accomplished by creating two groups—large generators and small generators and charging each a flat fee. This variant of Alternative 1 would eliminate the problem caused by using groups with a small number of licensees. This variant of Alternative 1 will also result in all LLW-producing licensees paying a fairly determined fee, and avoid the gross inequities of total fee avoidance or disproportionately large fees for smaller licensees that would have resulted under the other alternatives and their variations put forth for comment in the proposed rule.

The large generators are comprised of power reactors and large fuel facilities. Waste generators in this group are each expected to generate more than 1,000 cubic feet of LLW per year. The small generators consist of all other LLW-producing licensees. The amount of the costs allocated to the two groups is estimated based on the historical average amount of waste disposed by the two groups. This reflects an 82 percent/18 percent split between the large and small groups. Within these two groups, each licensee would pay the same LLW fee (surcharge). In FY 1993, that amount is \$61,100 for large

³ The Secretary of Energy stated in his "1991 Annual Report on Low-Level Waste Management Progress" that:

As States continued to work toward providing management and disposal capability for their low-level radioactive waste, they also grappled with the possibility of no longer having access to the low-level radioactive waste disposal facilities now operating in Nevada, South Carolina, and Washington after December 31, 1992. The Act allows those three sites to close at the end of 1992. Should this occur, on January 1, 1993, as much as 90 percent of the volume of the Nation's low-level radioactive waste not disposed by that date could be required to be stored at the point of generation, which would raise numerous health, safety, financial, and legal issues.

³ Fees for the review of applications for LLW disposal sites that are submitted to NRC will be recovered under 10 CFR part 170 from the specific applicant.

⁴ The Commission is evaluating whether it would be beneficial to its LLW and other regulatory programs to obtain individual LLW generation data. If the Commission does acquire such data, then the Commission would evaluate whether such data could form the basis for a revised approach for assessing the LLW surcharge.

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generators and \$1,100 for small generators.

On remand from the Court of Appeals, the Commission also adopts this approach for FY 1991 and FY 1992. This will result in refunds for some large and small LLW generators. In the near future, the NRC will separately publish final revised FY 1991 and FY 1992 fee schedules for low-level waste surcharges resulting from changing the method of allocating NRC LLW budgeted generic costs. Requests for refunds should not be filed with the NRC prior to publication of these schedules.

B. Other Comments

1. *Comment.* Many commenters stated that they were concerned about the size of the fee increases, particularly the 10 CFR part 170 inspection fees for well logging, radiography and broad scope medical programs. These commenters indicated that they believe the fees are grossly exorbitant, punitive, and self defeating and that they cannot afford to pay them. A large number of small gauge users commented that because of the fees they are unable to do the testing required to build highways and roads for Federal and State governments and urge a reconsideration of the fee structure. Other commenters stated the increased inspection fees are designed to circumvent the small-entity two-tiered annual fee system in 10 CFR part 171 which allows small entities to either pay an annual fee of \$1,800 or \$400 depending on the gross annual receipts of the licensee. Several commenters stated that the increase in NRC fees is an inducement for Agreement States to raise their regulatory fees. One commenter suggested that the NRC should also apply the small entity criteria to 10 CFR part 170 fees as well, while another commenter suggested that all small entities be granted an exemption from fees. Several commenters stated that the proposed fees favor major service companies with a large capital base and will destroy small companies.

Response. The NRC discussed the reasons for the 10 CFR part 170 inspection fee increases in the proposed rule indicating that a distribution of the changes to the inspection fees shows that inspection fees would increase by at least 100 percent for 19 percent of the licenses. The NRC pointed out that the largest increases would be for inspections conducted of those licenses authorizing byproduct material for (1) broad scope processing or manufacturing of items for commercial distribution (fee category 3A); (2) broad scope research and development (fee

category 3L); and (3) broad scope medical programs (fee category 7B). Over 50 percent of the licenses would have increases of more than 50 percent. The NRC stated that the primary reason for these relatively large increases is that the average number of hours on which inspection fees are based has not been updated since 1984 (49 FR 21293; May 21, 1984). As a result, the average number of professional hours used in the current fee schedule for inspections is outdated because during the past years, the NRC's inspection program has changed significantly. In some program areas, for example, the NRC has emphasized that inspections be more thorough and in-depth so as to improve public health and safety. (58 FR 21669-21670).

These inspection fees must be updated consistent with the Chief Financial Officers Act (CFO) requirement that NRC conduct a review, on a biennial basis, of fees and other charges imposed by the Agency for its services and revise those charges to reflect the costs incurred in providing the services. Therefore, the fees established by NRC are not designed to circumvent the small entity annual fees in 10 CFR part 171 but rather are designed to recover the NRC's costs of processing individual applications for licensing actions and conducting individual inspections of licensed programs under 10 CFR part 170. The Commission notes that substantial fee reductions are given each year under 10 CFR part 171 to small entities. For example, a well logger with gross receipts of less than \$3.5 million would pay under this final regulation an annual fee of \$1,800 rather than \$11,420. As the Commission has stated previously, the small entity annual fee reduction is to reduce but not eliminate the impact of the fees (57 FR 32720).

2. *Comment.* Commenters in the fuel facilities class of licensees indicated that a further explanation is needed of the significant increases in their fees. They pointed out that the annual fee for a high enriched facility has increased from \$2.3 million in FY 1992 to \$3.3 million in FY 1993. Similarly, the annual fee for a low enriched uranium facility increased from \$838,250 in FY 1992 to 1,319,000 in FY 1993. The commenters questioned whether or not the increases were due to the increased staff required to provide oversight of the newly formed United States Enrichment Corporation (USEC). One commenter stated that although the United States Enrichment Corporation (USEC) is neither a licensee nor license applicant, significant resources will be expended to certify the gaseous diffusion plants

and it appears that no income has been attributed to the effort associated with this on-going certification process for FY 1993.

Response. The NRC believes that it has provided sufficient information concerning the FY 1993 budget to allow effective evaluation and constructive comment concerning the budgeted costs for fuel facility licensees. In Part III, the Section-by-Section Analysis, Table VI of the proposed rule published April 23, 1993 (58 FR 21675), the NRC provided a detailed explanation of the FY 1993 budgeted costs for the fuel facility class of licensees. Table VI of this final rule also shows a listing of the budgeted costs for this class of licensees. The FY 1993 resources are determined by the NRC and approved by the Congress as those necessary to carry out the health and safety activities for this class of licensees. The specific details regarding the budget for FY 1993 are documented in the NRC's publication "Budget Estimates, Fiscal Year 1993" (NUREG-1100, Volume 8), which is available to the public. The bases for the NRC resources are thoroughly addressed by the Congress through hearings and written questions and answers. The FY 1993 NRC hearings are documented, for example, in the publication "Energy and Water Development Appropriations for FY 1993—Hearings before a Subcommittee on Appropriations, House of Representatives, One Hundred Second Congress, Second Session, Part 6". The resources resulting from this review and decision process are those necessary for NRC to implement its statutory responsibilities. Questions relating to the NRC budget approval process were also addressed in the final rules published on July 10, 1991 (56 FR 31482) and July 23, 1992 (57 FR 32696). Given the increase in the budget for the fuel facilities class of licensees, it is necessary to increase the fees to recover the cost for these activities in accordance with OBRA-90. Contrary to some commenters suggestions, this increase is not attributable to NRC activities related to USEC. With regard to USEC, the NRC has adjusted its budgeted allocation for this new and unique added responsibility to reflect planned FY 1993 USEC activities and the fact that USEC will be assessed fees. On June 25, 1993, the NRC informed USEC that the NRC will bill USEC under 10 CFR part 170 for all NRC costs incurred on or after July 1, 1993, the formation date of USEC. The fees will be assessed to USEC under fee Category 1.E. of 10 CFR Part 170.31 and will cover those activities associated with

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the certification of the existing gaseous diffusion uranium enrichment facilities.

3. *Comment.* Another fuel facility licensee indicated that based on the Court's decision to grant Combustion Engineering an exemption from fees for one of its two low enriched uranium plants located in Hematite, Missouri and Windsor, Connecticut, it too deserves to be considered for an exemption because it is not operationally equivalent to the plants run by the full scope fuel fabricators since it purchases finished fuel pellets from another company and loads them into fuel rods for assembly into fuel elements. Therefore, the commenter requests that the NRC reconsider the implication of the Court's holding with respect to the disproportionate allocation of its costs under 10 CFR 171.11(d), especially as the allocation of these costs adversely impacts the licensee.

Response. The D.C. Circuit Court of Appeals decision of March 16, 1993, directed the NRC to grant an exemption from annual fees to Combustion Engineering (CE) for one of its two low enriched uranium facilities. The NRC had previously denied the exemption request from CE. The Court concluded that "the argument that the 'equal fee per license' rule is 'unfair and inequitable' is persuasive only on the ground that the rule produced troubling results when applied to Combustion's circumstances." The Court saw no reason for requiring the NRC to attend to that rather rare situation in the rule itself. Thus, consistent with the Court decision and 10 CFR part 171, if licensees feel that based on the circumstances of their particular situation they can make a strong case to the NRC for an exemption from the FY 1993 annual fees then they should do so. The NRC will consider such requests for exemption under the provisions of 10 CFR 171.11(d). In accordance with 10 CFR 171.11(b), such requests for exemption must be filed within 90 days from the effective date of this final rule. The filing of an exemption request does not extend the date on which the bill is payable. Only the timely payment in full ensures avoidance of interest and penalty charges. If a partial or full exemption is granted, any overpayment will be refunded.

4. *Comment.* Some uranium recovery licensees questioned and requested clarification concerning the purpose of the new categories in 10 CFR 170.31 and 171.16(d) (Category 4D) as many mill tailings facilities are already licensed to accept byproduct material for possession and disposal pursuant to NRC's Criteria 2 of 10 CFR part 40,

appendix A. These licensees believe that mill tailings facilities should not be assessed the additional fees as these charges are already included and factored into Category 2.A.(2) annual fees. Assessing additional fees for licensees already paying an annual fee under Category 2.A.(2) is double charging according to the commenters. One uranium recovery licensee questioned the revision of Footnotes 1 and 7 to 10 CFR 171.16(d) contending that as presently written there is no ambiguity or question. Other uranium recovery licensees indicated that they needed more information concerning the method used to establish the annual fees because of the wide fluctuations in these fees during the past three fiscal years. Others stated that while the proposed fees for FY 1993 represented a relief from the high fees of the previous two years the proposed rule does not provide a means of reimbursement for overpayment of FY 1993 annual fees that have already been paid to the NRC by the first three quarterly billings.

Response. The NRC explained in the proposed rule its reasons for establishing a new Category 4D in its two fee regulations, 10 CFR parts 170 and 171. The new category will allow the NRC to specifically segregate and identify those licenses which authorize the receipt, possession, and disposal of byproduct material from other persons as defined by section 11.e.(2) of the Atomic Energy Act. This change is based on NRC's recognition of potential increased activity related to the disposal of 11.e.(2) byproduct material and to better distinguish this unique category of license (58 FR 21670).

The costs allocated to the uranium recovery class of licensee are for safety generic and other regulatory activities that are attributable to this class of licensees and that are not recovered by 10 CFR part 170 license and inspection fees. With respect to mill licensees in fee Category 2.A.(2) that authorize both milling operations and the disposal of section 11.e.(2) byproduct material, the same NRC regulations (e.g., 10 CFR part 40), guidance (e.g., Regulatory Guides) and policies are applicable to both the license which authorizes milling and disposal of section 11.e.(2) byproduct material and the license that only authorizes disposal of 11.e.(2) byproduct material. The 10 CFR part 40 generic safety regulations are applied in the same manner to each license in the class independent of the source material activities authorized by the licenses. Therefore, mill licenses subject to the fees in fee Category 2A of 10 CFR 170.31 and fee Category 2.A.(2) of 10 CFR

171.16 will not be assessed fees under fee Category 4D. All other licenses, that authorize the receipt, from other persons, of section 11.e.(2) byproduct materials for possession and disposal will be subject to the Category 4D fees including mill licenses that authorize decommissioning, decontamination, reclamation or site restoration activities because they are not assessed annual fees under fee Category 14.

Although 10 CFR 171.19(b) specifies that the Commission will adjust the fourth quarter bill to recover the full amount of the revised annual fee, the NRC agrees that this section should be modified to more specifically cover overpayments. Accordingly, in this final rule the Commission has revised 10 CFR 171.19(b) to specifically state NRC's policy for handling those situations where the amounts collected in the first three quarters exceed the amount of the annual fee published in the final rule.

With respect to footnotes 1 and 7 in 10 CFR 171.16, the NRC indicated in the proposed rule that during the past two years many licensees have stated that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In particular, this issue was raised by certain uranium mill licensees who have mills not currently in operation. In responding to licensees about this matter, the NRC has stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that annual fees will be assessed based on whether a licensee holds a valid license with the NRC that authorizes possession and use of radioactive material (58 FR 21667-21668). To remove any uncertainty, the NRC is making minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7.

5. *Comment.* One commenter indicated that the methodology used in the current rule to determine inspection fees (routine and nonroutine) in 10 CFR part 170 should remain the same and that by proposing a uniform fee for both routine and nonroutine inspections, NRC believes they are equivalent. The commenter feels that the burden for inspection fees should be placed on

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licensees facing nonroutine inspections and that by creating a uniform fee for both types of inspections the NRC, in turn, burdens those licensees who do not require nonroutine inspections and who are unlikely to in the future. The commenter suggests that NRC create a lower fee schedule for routine inspections and make up the difference with higher fees for nonroutine inspections.

Response. NRC indicated in the proposed rule the reason for combining the current routine and nonroutine inspection fees into a single inspection fee. NRC's review of the inspection information indicates that over 90 percent of the inspections conducted are routine inspections. As a result, for most categories there were no nonroutine inspections conducted or a very small number of nonroutine inspections were completed (58 FR 21670). Therefore, the NRC has little or no meaningful current data on which to base a separate nonroutine inspection fee. As a result, the NRC is combining routine and nonroutine inspection fees into a single fee for routine and nonroutine inspections. Fees will continue to be assessed for any nonroutine inspections conducted of licensed programs. Because the inspection fee is based primarily on hours expended to conduct routine inspections, this approach does not burden those licensees that do not require nonroutine inspections.

6. Comment. One commenter indicated that the NRC had improperly calculated the costs of the High Level Waste (HLW) program by not including \$1.7 million in administrative costs in FY 1993 which were included in the FY 1992 calculations. The commenter contends that utilities would pay these HLW-related costs through the reactor annual fee when they have already paid for these activities through their mill/kwhr contribution to the NWF; therefore the NRC should correct this inequity by an appropriate reduction in the power reactor surcharge.

Response. All NRC's direct costs related to the disposal of civilian high-level radioactive waste and spent fuel in the Department of Energy's geologic repository are paid for with funds appropriated from the Nuclear Waste Fund. Administrative support costs such as office space, telephones, training, supplies, and computers are not charged to the Nuclear Waste Fund. The NRC now budgets administrative support funds centrally in its Nuclear Safety Management and Support program which contains the activities of those offices which annually provide the administrative support. This is done to facilitate a more direct correlation

between budget formulation and budget execution. For FY 1993, licensees have not paid for these administrative support activities through their mill/kwhr contribution to the NWF because the costs were not included in appropriations from the NWF.

7. Comment. Several commenters indicated that the hourly rate of \$132 (a seven percent increase over 1992) is excessive in view of the fact that the increase is approximately twice the rate of inflation. These commenters noted that the rate is considerably higher than the typical industry charge-out rate for direct employees and equals or exceeds the hourly charges for senior consultants at major national consulting organizations. The commenters suggested that NRC begin to control its internal cost by, for example, combining Regional offices, reducing the research program, and reducing the inspection hours by use of Systematic Assessment of Licensee Performance (SALP). This would lower both the hourly rate and the base rate being charged, enabling the industry to reduce its nuclear program costs. Some commenters suggested that the increase in the hourly rate be limited to the increase in the rate of inflation or the Consumer Price Index (CPI) while others indicated that the NRC institute an immediate moratorium freezing fees at or below FY 1992 levels.

Response. The NRC professional hourly rate is established to recover approximately 100 percent of the Congressionally approved budget, less the appropriation from the NWF, as required by OBRA-90. Both the method and budgeted costs used by the NRC in the development of the hourly rate of \$132 for FY 1993 are discussed in detail in part IV, Section-by-Section Analysis, for § 170.20 of the proposed rule (58 FR 21668) and the same section of this final rule. For example, Table II shows the direct FTEs (full time equivalents) by major program for FY 1993 and Table III shows the budgeted costs (salaries and benefits, administrative support, travel and other G&A contractual support) which must be recovered through fees assessed for the hours expended by the direct FTEs. The budgeted costs have increased \$26.4 million as compared to FY 1992 levels. This increase reflects the amount required by the NRC to effectively accomplish the mission of the agency. The specific details regarding the budget for FY 1993 are documented in the NRC's publication "Budget Estimates, Fiscal Year 1993" (NUREG-1100, Volume 8), which is available to the public. Given the increase in the budget, it is necessary to increase the 1993 hourly rate to recover 100 percent of the budget as required by

OBRA-90. The NRC is unable to use the CPI or other indices in the development of the NRC hourly rate or the fees to be assessed under 10 CFR parts 170 and 171 because if the hourly rate were increased by only three to four percent over the FY 1992 levels, the NRC could not meet the statutory mandate requirement of OBRA-90 to recover approximately 100 percent of the NRC budget authority through fees.

8. Comment. As in FY 1991 and FY 1992, commenters suggested that the NRC fee proposals violate the public trust and demean the intent of Congress. Commenters indicate that the NRC should assess fees based on the amount of throughput of material, the size of the facility, the amount or type of material possessed, the sales generated by the licensed location, the competitive condition of certain markets including the assessment of fees to Agreement States and the effect of fees on domestic and foreign competition. One commenter suggested that because the NRC has authority to allow a State to become an Agreement State, the NRC could also charge a fee to either the Agreement State or to individual firms. Another commenter indicated that the requirement that NRC recover 100 percent of its budget is wrong. It allows budgets to grow more irresponsibly than they usually do because no legislator or executive office needs to face a consequent tax problem. Another commenter suggested that it is imperative for NRC to closely examine what its regulatory program provides and how it can be provided more effectively.

Response. The issue of basing fees on the amount of material possessed, the frequency of use of the material, the size of the facilities, and market competitive positions, were addressed by the NRC in the Regulatory Flexibility Analysis in appendix A to the final rule published July 10, 1991 (56 FR 31511-31513). The Commission did not adopt that approach, and continues to believe that uniformly allocating the generic and other regulatory costs to the specific licensee to determine the amount of the annual fee is a fair, equitable, and practical way to recover its costs and that establishing reduced annual fees based on gross receipts (size) is the most appropriate approach to minimize the impact on small entities. Therefore, NRC finds no basis for altering its approach at this time. This approach was upheld by the D.C. Circuit in its March 16, 1993 decision in *Allied Signal*. With respect to Agreement States, since neither the Agreement States themselves nor the firms issued licenses by the Agreement States are

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NRC licensees, they cannot be assessed annual fees under OBRA-90.

With respect to the amount of the budget, the requirement for NRC to recover 100 percent of its budget does not exempt the NRC from the normal Government review and decisionmaking process. The NRC must first submit its budget to the Office of Management and Budget. The NRC budget is then sent to Congress for review and approval. The budget process, along with the internal NRC review process, helps ensure that the NRC budget is the minimum necessary to carry out an effective regulatory program.

9. *Comment.* The American College of Nuclear Physicians/Society of Nuclear Medicine (ACNP/SNM) commented that it had submitted a petition for rulemaking to the NRC to review the FY 1991 methodology so that medical licensees could be treated like nonprofit educational institutions. The commenter believes the NRC is obligated to address the concerns raised in the petition in terms of whether the proposed fee schedule for FY 1993 is consistent with the methodology adopted in FY 1991.

Response. The NRC indicated in its final rule for FY 1992 that it is not obligated to address the concerns raised in the petition of rulemaking filed with the NRC before adopting the final rule establishing fees for FY 1992 (57 FR 32694). This continues to be the case for FY 1993 as well. The NRC had intended to handle the petition within the context of the review and evaluation of the fee program for FY 1993. However, on October 24, 1992, the Energy Policy Act was enacted by the Congress. Section 2903(c) of the Act requires the NRC to review its policy for assessment of annual fees under section 6101(c) of the Omnibus Budget Reconciliation Act of 1990, solicit public comment on the need for changes to this policy, and recommend changes in existing law to the Congress the NRC finds are needed to prevent the placement of an unfair burden on certain NRC licensees. On April 19, 1993, the NRC published a Federal Register Notice soliciting public comment on the need, if any, for changes to the existing fee policy and associated laws in order to comply with the requirements of the Energy Policy Act.

The NRC now intends to consider the ACNP/SNM petition as well as a second fee petition received from the American Mining Congress on February 4, 1993, in the context of the overall fee policy review as required by the Energy Policy Act. The NRC believes that this will help ensure that similar issues are treated consistently and that resolution

of the petitions prior to the fee policy review would be premature given the Congressional request for future evaluation of the fee policy. The NRC expects the review to be completed by the end of calendar year 1993.

The Commission also notes that some of the medical commenters have asked that they be exempted from fees, just like the Commission has previously done for nonprofit educational institutions. As the Commission has explained earlier, the record before the Commission cannot support the continuation of the nonprofit educational exemption for FY 1993. Similarly, the Commission cannot adopt such an exemption for the medical community.

Differing Views of Commissioners Remick and DePlanque

For the reasons given below, we believe that the exemption for educational institutions, be they reactor licensees or materials licensees, should have been continued for the present on the basis of the approach suggested by the Court, and reconsidered thoroughly in the context of our response to section 2903(c) of the Energy Policy Act of 1992.

First, we do not believe that the notice of proposed rulemaking was adequate. Although the notice invited comments on the Court's "externalized benefits" approach, and on whether the exemption should be continued, the notice argued vigorously for continuing the exemption and therefore did not convey that the agency was, in effect, depending almost entirely on comments from affected licensees to provide a rationale for the exemption in FY 1993. It will be extremely difficult for many educational institutions to adjust this late in their budget cycles to what in many cases will be unexpected and significant fees.

Second, it is not entirely clear how the agency will apply the majority's two-part test for case-by-case exemptions, or what criteria will be used to determine whether a request satisfies the two-part test.

Third, no matter how the two-part test is interpreted and applied, we believe that a generic exemption based on the Court's suggested approach would be preferable to the two-part test for at least three reasons: (1) The Court's suggested approach would cover not only research reactors but also the many important materials licenses held by educational institutions; in contrast, it is not clear to what extent the two-part test can be applied to materials licensees; (2) a generic exemption would avert a situation in which every decision on an exemption request either would cause the U.S. Treasury to lose fee income or could force closure of a facility or termination of licensed activities of wide benefit; and (3) the generic exemption envisioned by the Court would obviate the need for a case-by-case, year-by-year expenditure of resources on a multitude of exemption requests.

In essence, the agency missed an opportunity to consider seriously the classic

"externalized benefits" argument suggested by the Court. A general argument like the one the Court invited us to make has a long history, and the "law and economics" scholars on the Court are no doubt familiar with the argument. It is, first, that education, like national defense, the administration of justice, and a few other activities, provides large and indispensable benefits to the whole society, not just to purchasers (in this case students) of the activity, and, second, that the market cannot be expected to supply the necessary amount of education, either because the "buyers" in the education market will not know enough to put the "right" price on education, or because they will not be able to pay that price. Consistent with this argument, education in free-market economies relies to a great extent on extra-market financial support from philanthropy and government.

This general argument would have to be adapted to the specific circumstances of our licensees to justify a generic exemption. It is clear that the argument requires more than a demonstration of hardship, and more than what the Court called the "quite vague" reference to the "externalized benefits" of education. Also, the Court would have required a showing that those benefits were "exceptionally large" and that they could not be "captured in tuition or other market prices." Nevertheless, the agency, and the commenters if given reasonable notice, might have been able to build an administrative record to support a generic exemption based on the argument. The effort the agency has saved by not looking further into the issue may turn out to be a fraction of the effort the agency will expend on responding to requests for case-by-case exemptions and permission to pay in installments.

We fear the ultimate effects the majority's action may have. To take research and training reactors alone, an annual fee of \$62,100 may prove to be a very substantial addition to, and possibly an unbearable burden for, the operating budgets of many of these reactors. Similar consequences may befall formerly exempt materials licensees. Consequently, the country may lose the considerable benefits which the nuclear-related activities of educational institutions provide, benefits acknowledged by the agency in the Statement of Considerations accompanying the proposed rule.

III. Final Action—Changes Included in the Final Rule

In addition to implementing the March 16, 1993, court decision, the NRC is also amending its licensing, inspection, and annual fees for FY 1993. OBRA-90 requires that the NRC recover approximately 100 percent of its FY 1993 budget authority, including the funding of its Office of the Inspector General, less the appropriations received from the NWF, by assessing licensing, inspection and annual fees. The CFO Act requires that the NRC review, on a biennial basis, the fees imposed by the agency.

For FY 1993, the NRC's budget authority is \$540.0 million, of which

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approximately \$21.1 million has been appropriated from the NWF. Therefore, OBRA-90 requires that the NRC collect approximately \$518.9 million in FY 1993 through 10 CFR part 170 licensing and inspection fees and 10 CFR part 171 annual fees. The NRC estimates that approximately \$110.1 million will be recovered in FY 1993 from the fees assessed under 10 CFR part 170. The remaining \$408.8 million will be recovered through the FY 1993 10 CFR part 171 annual fees.

The NRC has not changed the basic approach, policies, or methodology for calculating the 10 CFR part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR part 170, and the 10 CFR part 171 annual fees set forth in the final rules published July 10, 1991 (56 FR 31472) and July 23, 1992 (57 FR 32691), with the following exceptions. The method for calculating the LLW surcharge has been modified and the Commission has changed its policy with respect to the assessment of annual fees for nonprofit educational institutions. Both changes were discussed in Section II of this final rule.

Under this final rule, fees for most licenses will increase because—

(1) NRC's new budget authority has increased resulting in a corresponding increase in the professional hourly rate and, in some cases, the amount of funds budgeted for a particular class of licensee;

(2) The number of licenses in some classes has decreased as compared to FY 1992 due to license termination or consolidation resulting in fewer licensees to pay for the costs of regulatory activities not recovered under 10 CFR part 170; and

(3) The biennial review of fees and other charges required by the Chief Financial Officers Act.

The NRC contemplates that any fees to be collected as a result of this final rule will be assessed on an expedited basis to ensure collection of the required fees by September 30, 1993, as stipulated in the Public Law. Therefore, as in FY 1991 and FY 1992, the fees become effective 30 days after publication of the final rule in the Federal Register. The NRC will send a bill for the amount of the annual fee to the licensee or certificate, registration, or approval holder upon publication of the final rule. Payment is due on the effective date of the FY 1993 rule.

A. Amendments to 10 CFR part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

Six amendments have been made to part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. These revisions also comply with the guidance in the Conference Committee Report on OBRA-90 that fees assessed under the Independent Offices Appropriation Act (IOAA) recover the full cost to the NRC of all identifiable regulatory services each applicant or licensee receives.

First, the agency-wide professional hourly rate, which is used to determine the part 170 fees, is increased about seven percent from \$123 per hour to \$132 per hour (\$229,912 per direct FTE). The rate is based on the FY 1993 direct FTEs and that portion of the FY 1993 budget that is not recovered through the appropriation from the NWF.

Second, the current part 170 licensing and inspection fees in §§ 170.21 and 170.31 for all applicants and licensees are revised to reflect both the increase in the professional hourly rate and the results of the review required by the CFO Act. To comply with the requirements of the CFO Act, the NRC has evaluated historical professional staff hours used to process a licensing action (new license, renewal, and amendment) and to conduct routine and nonroutine inspections for those licensees whose fees are based on the average cost method (flat fees).

The evaluation of the historical data shows that the average number of professional staff hours needed to complete materials licensing actions has increased in some categories. The data for the average number of professional staff hours needed to complete licensing actions were last updated in FY 1990 (55 FR 21173; May 23, 1990). Therefore, the fees for these categories must be increased to reflect the costs incurred in completing the licensing actions. For other categories, the revised fees reflect that the average number of professional staff hours per licensing action decreased. Thus, the revised average professional staff hours reflect the changes in the NRC licensing review program that have occurred since FY 1990. The licensing fees are based on the new average professional staff hours needed to process the licensing actions multiplied by the professional hourly rate for FY 1993 of \$132 per hour.

In the materials inspection area, the historical data for the average number of professional staff hours necessary to complete routine and nonroutine inspections shows that inspection hours used to determine the amount of the inspection fees have increased and in many cases significantly, when compared to the hours currently used under 10 CFR part 170. The data for the average number of professional staff hours necessary to conduct routine and nonroutine inspections were last updated in FY 1984 (49 FR 21293; May 21, 1984). As a result, the average number of professional staff hours used in the current fee schedule for inspections is outdated. Since 1985, the amount of the inspection fees has been updated based only on the increased professional hourly rate. The increased average professional staff hours reflects the changes in the inspection program that have been made for safety reasons. In some program areas, for example, NRC management guidance in recent years has emphasized that inspections be more thorough, in-depth and of higher quality. The inspection fees are based on the new average professional staff hours necessary to conduct the inspections multiplied by the professional hourly rate for FY 1993 of \$132 per hour.

In summary, the NRC is revising both materials licensing and inspection fees assessed under 10 CFR part 170 in order to comply both with guidance in the Conference Committee report on OBRA-90 and with the CFO Act's requirement that fees be revised to reflect the cost to the agency of providing the service.

The review of the inspection information also indicates that over 90 percent of the inspections conducted by NRC are routine inspections. As a result, for most fee categories there were no nonroutine inspections conducted or a very small number of nonroutine inspections were completed. For these reasons, the NRC, for fee purposes, is establishing a single inspection fee rather than separate fees for routine and nonroutine inspections. This inspection fee will be assessed for each routine and nonroutine inspection conducted by the NRC.

Third, a new fee category 4D is added to 10 CFR 170.31 to specifically segregate and identify licenses authorizing the receipt from other persons of byproduct material as defined in section 11.e.(2) of the Atomic Energy Act for possession and disposal. Section 11.e.(2) byproduct material is the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

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Fourth, irradiator fee Categories 3F and 3G in 10 CFR 170.31 are broadened to include underwater irradiators for irradiation of materials where the source is not exposed for irradiation purposes.

Fifth, a new section, 170.8, is added which provides that 10 CFR part 170 does not contain any information collection requirements falling within the purview of the Paperwork Reduction Act.

Sixth, the definition of *materials license* in § 170.3 is being revised to clarify that the term license, for fee purposes, includes a license, certificate, approval, registration, or other form of permission issued by the NRC.

B. Amendments to 10 CFR Part 171 Annual Fees for Reactor Operating Licenses, and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by NRC

Seven amendments have been made to 10 CFR part 171. First, §§ 171.13, and 171.16 are amended to revise the annual fees for FY 1993 to recover approximately 100 percent of the FY 1993 budget authority less fees collected under 10 CFR part 170 and funds appropriated from the NWF.

Second, § 171.11 is amended to revise paragraphs (a), (b), and (d). Paragraph (a) is revised to revoke the current exemption from annual fees for nonprofit educational institutions. A detailed discussion of this change in fee policy is found in Section II of this final rule. Other changes to paragraph (a) incorporate the specific statutory exemption provided in the Energy Policy Act of 1992 for certain nonpower (research) reactors. Section 2903(a)(4) of the Energy Policy Act, enacted October 24, 1992, amends Section 6101(c) of OBRA-90 to specifically exempt from 10 CFR part 171 annual fees certain Federally owned research reactors if—

(1) The reactor is used primarily for educational training and academic research purposes and;

(2) The design of the research reactor satisfies certain technical specifications set forth in the legislation.

The NRC, in implementing this provision of the Energy Policy Act, intends to limit the exemption in 10 CFR part 171 only to Federally owned research reactors.

Clarifying changes to the exemption provision for materials licensees in §§ 171.11(b) and (d) are also being made.

The NRC is revising § 171.11(b) to not only require that requests for exemption be filed with the NRC within 90 days

from the effective date of the final rule but also to require that requests for clarification of or questions relating to annual fee bills must also be filed within 90 days from the date of the invoice.

The NRC is amending § 171.11(d) to clarify that the three factors for exemption for materials licensees should not be read as conjunctive requirements but rather should be read as independent considerations which can support an exemption request.

The NRC also notes that since the final FY 1992 rule was published in July 1992, licensees have continued to file requests for termination of their licenses or certificates with the NRC. Other licensees have either called or written to the NRC since the FY 1992 final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible but was unable to respond and take action on all of the requests prior to the end of the fiscal year on September 30, 1992. Footnote 1 of 10 CFR 171.16 provides that the annual fee is waived where a license is terminated prior to October 1 of each fiscal year. However, based on the number of requests filed, the Commission, for FY 1993, is exempting from the FY 1993 annual fees those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their license or approval or filed for a possession only/storage license prior to October 1, 1992, and were capable of permanently ceasing licensed activities entirely by September 30, 1992.

In addition, because nonprofit educational institutions will be billed for the first time for annual fees, they are being afforded the same opportunity to file requests for termination and avoid the FY 1993 annual fee as other licensees were given when annual fees were first assessed to them in FY 1991. The NRC wishes to emphasize that nonprofit educational institutions who hold licenses, certificates, registrations, and approvals and who wish to relinquish their license(s), certificate(s), or registration(s) or obtain a Possession Only License (POL), and who are capable of permanently ceasing licensed activities entirely by September 30, 1993, must, within the 30-day period before the effective date of the rule, notify the Commission, in writing, in accordance with 10 CFR 30.36, 40.42, 50.82, and 70.38, as appropriate. Nonprofit educational institutions who hold licenses, certificates, registrations and approvals must promptly comply with the conditions for license

termination in those regulations in order to be considered by the NRC for a waiver of the FY 1993 annual fee. All other licensees and approval holders who held a license or approval on October 1, 1992, are subject to the FY 1993 annual fees.

Third, § 171.19 is amended to credit the quarterly partial payments made by certain licensees in FY 1993 toward their total annual fee to be assessed or to make refunds, if necessary.

Fourth, a new category 4D is added to 10 CFR 171.16(d) to specifically segregate and identify licensees authorizing the receipt from other persons of byproduct material as defined in section 11.e.(2) of the Atomic Energy Act for possession and disposal. Section 11.e.(2) byproduct material is the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

Fifth, additional language is added for irradiator fee Categories 3F and 3G in 10 CFR 171.16(d) to clarify that those two fee categories include underwater irradiators for irradiation of materials where the source is not exposed for irradiation purposes.

Sixth, a new § 171.8 is being added which provides that 10 CFR part 171 does not contain any information collection requirements falling within the purview of the Paperwork Reduction Act.

Seventh, the definition of *materials license* in § 171.3 is being revised to clarify that the term license, for fee purposes, includes a license, certificate, approval, registration or other form of permission issued by the NRC.

The NRC notes that the impact of the fees for FY 1993 on small entities has been evaluated in the Regulatory Flexibility Analysis (see appendix A to this final rule). Based on this analysis, the NRC is continuing for FY 1993 a maximum annual fee of \$1,800 per licensed category for those licensees who qualify as a small entity under the NRC's size standards. The NRC is also continuing for FY 1993 the lower tier small entity annual fee of \$400 per licensed category for certain materials licensees, which was established by the NRC in FY 1992 (57 FR 13625; April 17, 1992).

The 10 CFR part 171 annual fees have been determined using the same method used to determine the FY 1991 and FY 1992 annual fees except for LLW annual fees as discussed in Section II of this final rule. The amounts to be collected through annual fees in the amendments to 10 CFR part 171 are based on the increased professional hourly rate. The amendments to 10 CFR part 171 do not

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change the underlying basis for 10 CFR part 171; that is, charging a class of licensees for NRC costs attributable to that class of licensees. The charges are consistent with the Congressional guidance in the Conference Committee Report on OBRA-90, which states that the "conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensee to such class" and the "conferees intend that the NRC assess the annual charge under the principle that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual fee." 136 Cong. Rec., at H12692-93.

The NRC notes that many licensees have indicated during the past two years that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In particular, this issue has been raised by certain uranium mill licensees who have mills not currently in operation. In responding to licensees about this matter, the NRC has stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that the annual fees will be assessed based on whether a licensee holds a valid license with the NRC that authorizes possession and use of radioactive material. To remove any uncertainty, the NRC is issuing minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7.

C. FY 1993 Budgeted Costs

The FY 1993 budgeted costs by major activity to be recovered through 10 CFR parts 170 and 171 fees are shown in Table I.

TABLE I.—RECOVERY OF NRC'S FY 1993 BUDGET AUTHORITY

Recovery method	Estimated amount (dollars in millions)
Nuclear waste fund	\$21.1
Part 170 (license and inspection fees)	110.1
Other receipts .....	.1

TABLE I.—RECOVERY OF NRC'S FY 1993 BUDGET AUTHORITY—Continued

Recovery method	Estimated amount (dollars in millions)
Part 171 (annual fees):	
Power Reactors	323.5
Nonpower Reactors	2.7
Fuel Facilities	13.7
Spent Fuel Storage .....	.7
Uranium Recovery .....	.5
Transportation	4.4
Material Users	138.6
Subtotal part 171	384.1
Costs remaining to be recovered not identified above	24.6
Total	540.0

¹ Includes \$5.4 million that will not be recovered from small materials licensees because of the reduced small entity fees.

The \$24.6 million identified for those activities which are not identified as either 10 CFR parts 170 or 171 or the NWF in Table I are distributed among the NRC classes of licensees as follows:

\$22.1 million to operating power reactors; \$0.8 million to fuel facilities; and \$1.7 million to other materials licensees.

In addition, approximately \$5.4 million must be collected as a result of continuing the \$1,800 maximum fee for small entities and the lower tier small entity fee of \$400 for certain licensees. In order for the NRC to recover 100 percent of its FY 1993 budget authority in accordance with OBRA-90, the NRC will recover \$4.6 million of the \$5.4 million from operating power reactors and the remaining \$0.8 million from large entities that are not reactor licensees.

This distribution results in an additional charge (surcharge) of approximately \$223,000 per operating power reactor; \$61,100 for each HEU, LEU, UF₆ and each other fuel facility license; \$1,100 for each materials license in a category that generates a significant amount of low level waste; and \$120 for other materials licenses. When added to the base annual fee of approximately \$3.0 million per reactor, this will result in an annual fee of approximately \$3.2 million per operating power reactor. The total fuel facility annual fee will be between approximately \$680,000 and \$3.1 million. The total annual fee for materials licenses will vary depending on the fee category(ies) assigned to the license.

The additional charges not directly or solely attributable to a specific class of NRC licensees or costs not recovered from all NRC licensees on the basis of

previous Commission policy decisions will be recovered from the designated classes of licensees previously identified. A further discussion and breakdown of the specific costs by major classes of licensees are shown in Section IV of this final rule.

The NRC notes that in prior litigation over NRC annual fees, the U.S. Court of Appeals for the District of Columbia Circuit concluded that the NRC "did not abuse its discretion by failing to impose the annual fee on all licensees," *Florida Power & Light Co. v. NRC*, 846 F.2d 765, 770 (D.C. Cir. 1988), cert. denied, 109 S. Ct. 1952 (1989). As noted earlier, the conferees on Pub. L. 101-508 have acknowledged the D.C. Circuit's holding that the Commission was within its legal discretion not to impose fees on all licensees.

IV. Section-by-Section Analysis

The following analysis of those sections that are affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, U.S. Code of Federal Regulations.

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Section 170.3 Definitions.

The definition of materials license is being revised to clarify that the term license, for fee purposes, includes a license, certificate, approval, registration or other form of permission issued by the NRC pursuant to the regulations in 10 CFR parts 30, 32 through 36, 39, 40, 61, 70, 71 and 72. This definition is consistent with the definition of license in Section 551(8) of the Administrative Procedures Act.

Section 170.8 Information collection requirements: OMB approval.

This section, which is being added, provides that 10 CFR part 170 does not contain any information collection requirements falling within the purview of the Paperwork Reduction Act.

Section 170.20 Average cost per professional staff hour.

This section is amended to reflect an agency-wide professional staff-hour rate based on FY 1993 budgeted costs. Accordingly, the NRC professional staff-hour rate for FY 1993 for all fee categories that are based on full cost is \$132 per hour, or \$229,912 per direct FTE. The rate is based on the FY 1993 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF. The rate is calculated using the identical method established for FY 1991 and FY 1992. The method is as follows:

1. All direct FTEs are identified in Table II by major program.

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TABLE II.—ALLOCATION OF DIRECT FTEs BY MAJOR PROGRAM

Major program	Number of direct FTEs ¹
Reactor Safety & Safeguards Regulation	1,080.0
Reactor Safety Research	117.7
Nuclear Material & Low-Level Waste Safety & Safeguards Regulation	334.4
Reactor Special and Independent Reviews, Investigations, and Enforcement	69.0
Nuclear Material Management and Support	18.0
Total direct FTE	21,619.1

¹ FTE (full time equivalent) is one person working for a full year. Regional employees are counted in the office of the program each supports.

² In FY 1993, 1,619.1 FTEs of the total 3,296 FTEs are considered to be in direct support of NRC non-NWF programs. The remaining 1,676.9 FTEs are considered overhead and general and administrative.

2. NRC FY 1993 budgeted costs are allocated, in Table III, to the following four major categories:

- (a) Salaries and benefits.
- (b) Administrative support.
- (c) Travel.
- (d) Program support.

3. Direct program support, the use of contract or other services in support of the line organization's direct program, is excluded because these costs are charged directly through the various categories of fees.

4. All other costs (i.e., Salaries and Benefits, Travel, Administrative Support, and Program Support contracts/services for G&A activities) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Using this method, which was described in the final rules published July 10, 1991 (56 FR 31472) and July 23, 1992 (57 FR 32691) and excluding direct Program Support funds, the remaining \$372.3 million allocated uniformly to the direct FTEs (1,619.1) results in a rate of \$229,912 per FTE for FY 1993. The Direct FTE Hourly Rate is \$132 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing \$372.3 million by the number of direct FTEs (1,619.1 FTE) and the number of productive hours in one year (1,744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities."

TABLE III.—FY 1993 BUDGET AUTHORITY BY MAJOR CATEGORY
(Dollars in millions)

Salaries and benefits	\$254.1
Administrative support	83.8
Travel	14.1
Total nonprogram support obligations	352.0
Program support	166.9
Total Budget Authority	518.9
Less direct program support and offsetting receipts	146.6
Budget Allocated to Direct FTE	372.3
Professional Hourly Rate	132

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections, and Import and Export Licenses.

The licensing and inspection fees in this section, which are based on full-cost recovery, are revised to reflect the FY 1993 budgeted costs and to more completely recover costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate as shown in § 170.20 and any direct program support (contractual services) cost expended by the NRC. Any professional hours expended on or after the effective date of this rule will be assessed at the FY 1993 rate shown in § 170.20. The NRC is revising the amount of the import and export licensing fees in § 170.21, facility Category K to provide for the increase in the hourly rate from \$123 per hour to \$132 per hour.

Footnote 2 of § 170.21 is revised to provide that for those applications currently on file and pending completion, the professional hours expended up to the effective date of this rule will be assessed at the professional rates established for the June 20, 1984, January 30, 1989, July 2, 1990, August 9, 1991, and August 24, 1992, rules as appropriate. For topical report applications currently on file which are still pending completion of the review, and for which review costs have reached the applicable fee ceiling established by the July 2, 1990, rule, the costs incurred after any applicable ceiling was reached through August 8, 1991, will not be billed to the applicant. Any professional hours expended for the review of topical report applications, amendments, revisions or supplements to a topical report on or after August 9, 1991, are assessed at the applicable rate established by § 170.20.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, including Inspections, and Import and Export Licenses.

The licensing and inspection fees in this section are revised to recover more completely the FY 1993 costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. Those flat fees, which are based on the average time to review an application or conduct an inspection, have been adjusted to reflect both the increase in the professional hourly rate from \$123 per hour in FY 1992 to \$132 per hour in FY 1993 and the revised average professional staff hours needed to process a licensing action (new license, renewal, and amendment) and to conduct inspections.

As previously indicated, the CFO Act requires that the NRC conduct a review, on a biennial basis, of fees and other charges imposed by the agency for its services and revise those charges to reflect the costs incurred in providing the services. Consistent with the CFO Act requirement, the NRC has completed its review of license and inspection fees assessed by the agency. The review focused on the flat fees that are charged nuclear materials licensees and applicants for licensing actions (new licenses, renewals, and amendments) and for inspections. The full cost license/inspection fees (e.g., for reactor and fuel facilities) and annual fees were not included in this biennial review because the hourly rate for full cost fees and the annual fees are reviewed and updated annually in order to recover 100 percent of the NRC budget authority.

To determine the licensing and inspection flat fees for materials licensees and applicants, the NRC uses historical data to determine the average number of professional hours required to perform a licensing action or inspection for each license category. These average hours are multiplied by the professional hourly rate of \$132 per hour for FY 1993. Because the professional hourly rate is updated annually, the biennial review examined only the average number of hours per licensing action and inspection. The review indicates that the NRC needs to modify the average number of hours on which the current licensing and inspection flat fees are based in order to recover the cost of providing the licensing and inspection services. The average number of hours required for licensing actions was last reviewed and modified in 1990 (55 FR 21173; May 23, 1990). Thus the revised hours used to determine the fees for FY 1993 reflect

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the changes in the licensing program that have occurred since that time, for example, new initiatives underway for certain types of licenses and management guidance that reviewers conduct more detailed reviews of certain renewal applications based on historical enforcement actions in order to insure public health and safety. The average number of hours for materials licensing actions (new licenses, renewals and amendments) have not changed significantly for most categories. For new license applications, approximately 60 percent of the materials license population have increases of less than 25 percent, with some having slight decreases. For license renewals, approximately 85 percent have increases of less than 25 percent, with some having decreases; and for amendments, approximately 90 percent have increases of less than 25 percent with some having decreases. Only 2 percent of the materials license population have increases of 100 percent or greater, for example, renewal fees for irradiator licenses (fee Categories 3F and 3G) and licenses authorizing distribution of items containing byproduct material to persons generally licensed under 10 CFR part 31 (fee Category 3J).

For materials inspections, a distribution of the changes to the inspection fees shows that inspection fees increased by at least 100 percent for 19 percent of the licenses. The largest increases are for inspections conducted of those licenses authorizing byproduct material for (1) broad scope processing or manufacturing of items for commercial distribution (fee category 3A); (2) broad scope research and development (fee category 3L); and (3) broad scope medical programs (fee category 7B). Over 50 percent of the licenses have increases of more than 50 percent. The primary reason for these relatively large increases is that the average number of hours on which inspection fees are based has not been updated since 1984 (49 FR 21293; May 21, 1984). As a result, the average number of professional hours used in the current fee schedule for inspections is outdated. During the past eight years, the NRC's inspection program has changed significantly. In some program areas, for example, NRC management guidance in recent years has emphasized that, based on historical enforcement actions, inspections be more thorough and in-depth so as to improve public health and safety.

The review of the inspection information also indicates that over 90 percent of the inspections conducted are routine inspections. As a result, for most

fee categories there were no nonroutine inspections conducted or a very small number of nonroutine inspections were completed. Therefore, the NRC has little or no meaningful current data on which to base a separate nonroutine inspection fee. For these reasons, the NRC, for fee purposes, is combining routine and nonroutine inspection fees into a single fee rather than assess separate fees for routine and nonroutine inspections. This inspection fee will be assessed for each routine and nonroutine inspection conducted by the NRC.

The amounts of the licensing and inspection flat fees were rounded, as in the past, by applying standard rules of arithmetic so that the amounts rounded would be de minimus and convenient to the user. Fees that are greater than \$1,000 are rounded to the nearest \$100. Fees under \$1,000 are rounded to the nearest \$10.

The revised fees are applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D, 10.B, 15A through 15E and 16. The fees will be assessed for applications filed or inspections conducted on or after the effective date of this rule.

For those licensing, inspection, and review fees assessed that are based on full-cost recovery (cost for professional staff hours plus any contractual services), the revised hourly rate of \$132, as shown in § 170.20, applies to those professional staff hours expended on or after the effective date of this rule.

Additional language has been added to irradiator fee Categories 3F and 3G in 10 CFR 170.31 to clarify that those two fee categories include underwater irradiators for irradiation of materials where the source is not exposed for irradiation purposes. Although the sources are not removed from their shielding for irradiation purposes, underwater irradiators are not self-shielded as are the small irradiators in fee Category 3E. The underwater irradiators are large irradiators, and possession limits of thousands of curies are authorized in the licenses. The design of the facility is important to the safe use of both exposed source irradiators and underwater irradiators, and 10 CFR part 36 applies the same requirements to the underwater irradiators where the source is not exposed for irradiation as to the exposed source irradiators. The average costs of conducting license reviews and performing inspections of the underwater irradiators where the source remains shielded during irradiation are similar to the costs for irradiators where the source is exposed during irradiation.

Category 4D in 10 CFR 170.31 is added to specifically segregate and

identify those licenses authorizing the receipt, from other persons, of byproduct material as defined in section 11.e.(2) of the Atomic Energy Act for possession and disposal. Section 11.e.(2) byproduct material is the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. This change is based on the NRC's recognition of increased activity related to disposal of 11.e.(2) byproduct material and to better distinguish this unique category of license. Mill licenses subject to the fees in fee Category 2A of 10 CFR 170.31 will not be assessed fees under fee Category 4D. All other licenses that authorize the receipt, from other persons, of section 11.e.(2) byproduct material for possession and disposal will be subject to the Category 4D fees. Mill licenses that authorize decommissioning, decontamination, reclamation or site restoration activities and section 11.e.(2) disposal services are subject to the fees of both categories, as applicable.

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Section 171.3 Definitions.

The definition of materials license is being revised to clarify that the term license, for fee purposes, includes a license, certificate, approval, registration or other form of permission issued by the NRC pursuant to the regulations in 10 CFR parts 30, 32 through 36, 39, 40, 61, 70, 71 and 72. This definition is consistent with the definition of license in section 551(8) of the Administrative Procedures Act.

Section 171.8 Information collection requirements: OMB approval.

This section, which is being added, provides that 10 CFR part 171 does not contain any information collection requirements falling within the purview of the Paperwork Reduction Act.

Section 171.11 Exemptions.

Paragraph (a) of this section is amended to revoke the current exemption from annual fees for nonprofit educational institutions. The NRC is changing its previous policy decision because of the U.S. Court of Appeals decision on fees and the current administrative record that would comprise the basis for a continued exemption. A detailed discussion of this change in fee policy is found in Section II of this final rule.

A new paragraph is added which incorporates the specific statutory exemption provided in the Energy Policy Act of 1992 for certain nonpower (research) reactors, and paragraphs (b) and (d), the exemption section for materials licensees, have been revised.

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Section 2903(a)(4) of the Energy Policy Act amends section 6101(c) of OBRA-90 to specifically exempt from 10 CFR part 171 annual fees certain Federally owned research reactors if—

(1) The reactor is used primarily for educational training and academic research purposes; and

(2) The design of the research reactor satisfies certain technical specifications set forth in the legislation. For purposes of this exemption the term "research reactor" means a nuclear reactor that—

(i) Is licensed by the Nuclear Regulatory Commission under section 104 c. of the Atomic Energy Act of 1954 (42 U.S.C. 2134(c)) for operation at a thermal power level of 10 megawatts or less; and

(ii) If so licensed for operation at a thermal power level of more than 1 megawatt, does not contain—

(A) A circulating loop through the core in which the licensee conducts fuel experiments;

(B) A liquid fuel loading; or

(C) An experimental facility in the core in excess of 18 square inches in cross-section.

The NRC, in implementing this provision of the Energy Policy Act, is limiting the exemption in 10 CFR part 171 only to Federally owned research reactors.

The NRC, in making this required change, is not changing its exemption policy. As in FY 1991 and FY 1992, the NRC will continue a very high eligibility threshold for granting exemption requests. Therefore, the NRC strongly discourages the filing of exemption requests by licensees who have previously had exemption requests denied unless there are significantly changed circumstances.

Earlier in this notice, the NRC discussed its decision to revoke the current exemption from annual fees for nonprofit educational institutions. Nonprofit educational institutions will be subject to annual fees in FY 1993.

Exemption requests, or any requests to clarify the bill, will not, per se, extend the interest-free period for payment of the bill. Bills are due on the effective date of the final rule. Therefore, only payment will ensure avoidance of interest, administrative, and penalty charges. Any requests for

exemption from the annual fees should be addressed to the USNRC, ATTN: Executive Director for Operations, Washington, DC 20555.

The NRC is revising § 171.11(b) to not only require that requests for exemption be filed with the NRC within 90 days from the effective date of the final rule establishing the annual fees but also to require that requests for clarification of or questions relating to annual fee bills must also be filed within 90 days from the date of the invoice.

Experience in considering exemption requests under § 171.11 has indicated that § 171.11(d) is ambiguous regarding whether an applicant must fulfill all, or only one, of the three factors listed in the exemption provision in order to be considered for an exemption. The NRC is amending the section to clarify that the three factors should not be read as conjunctive requirements but rather as independent considerations which can support an exemption request.

The NRC notes that section 2903(c) of the Energy Policy Act requires the NRC to review its policy for assessment of annual fees, under section 6101(c) of OBRA-90, solicit comment on the need for changes to this policy, and recommend changes in existing law to the Congress the NRC finds are needed to prevent the placement of an unfair burden on certain NRC licensees. The NRC published for public comment a separate notice in the Federal Register on April 19, 1993 (58 FR 21116-21121). The 90-day public comment period for this notice expires on July 19, 1993.

The NRC also notes that since the FY 1992 final rule was published in July 1992, licensees have continued to file requests for termination with the NRC. Other licensees have either called or written to the NRC since the final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible but it was unable to respond and take appropriate action on all of the requests before the end of the fiscal year on September 30, 1992. Footnote 1 of 10 CFR 171.16 provides that the annual fee is waived where a license is terminated prior to October 1 of each fiscal year. However, based on the number of requests filed, the NRC is exempting

from the FY 1993 annual fees those licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage only licenses prior to October 1, 1992, and were capable of permanently ceasing licensed activities entirely by September 30, 1992. In addition, because nonprofit educational institutions will be billed for the first time for annual fees the NRC wishes to emphasize that nonprofit educational institutions who hold licenses, certificates, registrations, and approvals and who wish to relinquish their license(s), certificate(s), or registration(s) or obtain a Possession Only License (POL), and who are capable of permanently ceasing licensed activities entirely by September 30, 1993, must, within the 30-day period before the effective date of the rule, notify the Commission, in writing, in accordance with 10 CFR 30.36, 40.42, 50.82, and 70.38, as appropriate. Nonprofit educational institutions who hold licenses, certificates, registrations, and approvals must promptly comply with the conditions for license termination in those regulations in order to be considered by the Commission for a waiver of the FY 1993 annual fee. This is being done so that nonprofit educational institutions will be afforded the same opportunity to file for termination and avoid the FY 1993 annual fee as other licensees were given when annual fees were first assessed to them in FY 1991. All other licensees and approval holders who held a license or approval on October 1, 1992, are subject to the FY 1993 annual fees.

Section 171.15 Annual Fee: Reactor operating licenses.

The annual fees in this section are revised to reflect the FY 1993 budgeted costs. Paragraphs (a), (b)(3), (c)(2), (d), and (e) are revised to comply with the requirement of OBRA-90 to recover approximately 100 percent of the NRC budget for FY 1993. Table IV shows the budgeted costs that have been allocated to operating power reactors. They have been expressed in terms of the NRC's FY 1993 programs and program elements. The resulting total base annual fee amount for power reactors is also shown.

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TABLE IV.—ALLOCATION OF NRC FY 1993 BUDGET TO POWER REACTORS BASE FEES ¹

	Program element total		Allocated to power reactors	
	Program support (\$,K)	Direct FTE	Program support (\$,K)	Direct FTE
Reactor Safety and Safeguards Regulation (RSSR):				
Standard Reactor Designs	\$6,663	111.2	\$6,363	103.5
Reactor License Renewal	913	14.6	913	14.6
Reactor and Site Licensing	1,015	24.4	995	24.1
Resident Inspections		204.0		204.0
Region-Based Inspections	4,628	245.6	4,628	240.3
Interns (HQ and Regions)		45.0		45.0
Special Inspections	3,157	60.7	3,157	60.7
License Maintenance and Safety Evaluations	8,606	222.3	8,606	222.3
Plant Performance	860	55.1	860	55.1
Human Performance	6,920	61.0	6,470	56.4
Other Safety Reviews and Assistance	988	36.1	658	29.7
RSSR Program Total			32,650	1,055.7
Reactor Safety Research (RSR):				
Standard Reactor Designs	20,200	29.6	20,200	29.6
Reactor Aging & License Renewal	22,993	13.4	21,493	13.3
Plant Performance	2,800	3.0	2,800	3.0
Human Reliability	6,150	7.2	6,150	7.2
Reactor Accident Analysis	22,102	26.0	22,102	26.0
Safety Issue Resolution and Regulatory Improvements	11,590	38.5	11,590	38.5
RSR Program Total			84,335	117.6
Nuclear Material & Low Level (NMLL)				
NMLL (NMSS):				
Safeguards Licensing and Inspection	440	19.4		.1
Threat & Event Assess./International Safeguards	1,600	12.7	1,275	6.1
Develop & Implement Inspection Activities	0	2.3	0	1.3
Uranium Recovery Licensing and Inspection	350	9.7	38	.2
Decommissioning	1,200	30.1	200	5.6
NMLL (RES):				
Environmental Policy and Decommissioning	1,925	9.0	825	3.8
NMLL Program Total			2,338	17.1
Reactor Special and Independent Reviews, Investigations, and Enforcement:				
Diagnostic Evaluations	350	7.0	350	7.0
Incident Investigations	25	1.0	25	1.0
NRC Incident Response	2,005	24.0	2,005	24.0
Operational Experience Evaluation	5,360	34.0	5,360	34.0
Committee on Review Generic Requirements		2.0		2.0
RSIRIE Program Total			7,740	68.0
Total			127,063	1,258.4
Total Base Fee Amount Allocated to Power Reactors (millions)				²\$416.4
Less Estimated Part 170 Power Reactor Fees (millions)				\$92.8
Part 171 Base Fees for Operating Power Reactors (millions)				\$323.6

¹ Base annual fees include all costs attributable to the operating power reactor class of licensees. The base fees do not include costs allocated to power reactors for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

Based on the information in Table IV, the base annual fees to be assessed for FY 1993 are the amounts shown in Table V below for each nuclear power operating license.

TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS

Reactors	Containment type	Annual fee
Westinghouse:		
1. Beaver Valley 1	PWR Large Dry Containment.	\$2,972,000
2. Beaver Valley 2do	2,972,000
3. Braidwood 1do	2,972,000
4. Braidwood 2do	2,972,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
5. Byron 1 .....	...do	2,972,000
6. Byron 2 .....	...do	2,972,000
7. Callaway 1 .....	...do	2,972,000
8. Comanche Peak 1 .....	...do	2,972,000
9. Diablo Canyon 1 .....	...do	2,969,000
10. Diablo Canyon 2 .....	...do	2,969,000
11. Farley 1 .....	...do	2,972,000
12. Farley 2 .....	...do	2,972,000
13. Ginna .....	...do	2,972,000
14. Haddam Neck .....	...do	2,972,000
15. Harris 1 .....	...do	2,972,000
16. Indian Point 2 .....	...do	2,972,000
17. Indian Point 3 .....	...do	2,972,000
18. Kewaunee .....	...do	2,972,000
19. Millstone 3 .....	...do	2,972,000
20. North Anna 1 .....	...do	2,972,000
21. North Anna 2 .....	...do	2,972,000
22. Point Beach 1 .....	...do	2,972,000
23. Point Beach 2 .....	...do	2,972,000
24. Prairie Island 1 .....	...do	2,972,000
25. Prairie Island 2 .....	...do	2,972,000
26. Robinson 2 .....	...do	2,972,000
27. Salem 1 .....	...do	2,972,000
28. Salem 2 .....	...do	2,972,000
29. San Onofre 1 .....	...do	2,969,000
30. Seabrook 1 .....	...do	2,972,000
31. South Texas 1 .....	...do	2,972,000
32. South Texas 2 .....	...do	2,972,000
33. Summer 1 .....	...do	2,972,000
34. Surry 1 .....	...do	2,972,000
35. Surry 2 .....	...do	2,972,000
36. Trojan .....	...do	2,969,000
37. Turkey Point 3 .....	...do	2,972,000
38. Turkey Point 4 .....	...do	2,972,000
39. Vogtle 1 .....	...do	2,972,000
40. Vogtle 2 .....	...do	2,972,000
41. Wolf Creek 1 .....	...do	2,972,000
42. Zion 1 .....	...do	2,972,000
43. Zion 2 .....	...do	2,972,000
44. Catawba 1	PWR—Ice Con- denser.	2,964,000
45. Catawba 2 .....	...do	2,964,000
46. Cook 1 .....	...do	2,964,000
47. Cook 2 .....	...do	2,964,000
48. McGuire 1 .....	...do	2,964,000
49. McGuire 2 .....	...do	2,964,000
50. Sequoyah 1 .....	...do	2,964,000
51. Sequoyah 2 .....	...do	2,964,000
Combustion Engineering:		
1. Arkansas 2	PWR Large Dry Containment.	3,013,000
2. Calvert Cliffs 1 .....	...do	3,013,000
3. Calvert Cliffs 2 .....	...do	3,013,000
4. Ft. Calhoun 1 .....	...do	3,013,000
5. Maine Yankee .....	...do	3,013,000
6. Millstone 2 .....	...do	3,013,000
7. Palisades .....	...do	3,013,000
8. Palo Verde 1 .....	...do	3,009,000
9. Palo Verde 2 .....	...do	3,009,000
10. Palo Verde 3 .....	...do	3,009,000
11. San Onofre 2 .....	...do	3,009,000
12. San Onofre 3 .....	...do	3,009,000
13. St. Lucie 1 .....	...do	3,013,000
14. St. Lucie 2 .....	...do	3,013,000
15. Waterford 3 .....	...do	3,013,000
Babcock & Wilcox:		
1. Arkansas 1 .....	...do	2,964,000
2. Crystal River 3 .....	...do	2,964,000
3. Davis Besse 1do	2,964,000
4. Oconee 1do	2,964,000
5. Oconee 2do	2,964,000
6. Oconee 3do	2,964,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
7. Three Mile Island 1 .....	.....do	2,964,000
General Electric		
1. Browns Ferry 1	Mark I	2,939,000
2. Browns Ferry 2 .....	.....do	2,939,000
3. Browns Ferry 3 .....	.....do	2,939,000
4. Brunswick 1 .....	.....do	2,939,000
5. Brunswick 2 .....	.....do	2,939,000
6. Clinton 1	Mark III	3,031,000
7. Cooper	Mark I	2,939,000
8. Dresden 2 .....	.....do	2,939,000
9. Dresden 3 .....	.....do	2,939,000
10. Duane Arnold .....	.....do	2,939,000
11. Fermi 2 .....	.....do	2,939,000
12. Fitzpatrick .....	.....do	2,939,000
13. Grand Gulf 1	Mark III	3,031,000
14. Hatch 1	Mark I	2,939,000
15. Hatch 2 .....	.....do	2,939,000
16. Hope Creek 1 .....	.....do	2,939,000
17. LaSalle 1	Mark II	2,939,000
18. LaSalle 2 .....	.....do	2,939,000
19. Limerick 1 .....	.....do	2,939,000
20. Limerick 2 .....	.....do	2,939,000
21. Millstone 1	Mark I	2,939,000
22. Monticello .....	.....do	2,939,000
23. Nine Mile Point 1 .....	.....do	2,939,000
24. Nine Mile Point 2	Mark II	2,939,000
25. Oyster Creek	Mark I	2,939,000
26. Peach Bottom 2 .....	.....do	2,939,000
27. Peach Bottom 3 .....	.....do	2,939,000
28. Perry 1	Mark III	3,031,000
29. Pilgrim	Mark I	2,939,000
30. Quad Cities 1 .....	.....do	2,939,000
31. Quad Cities 2 .....	.....do	2,939,000
32. River Bend 1	Mark III	3,031,000
33. Susquehanna 1	Mark II	2,939,000
34. Susquehanna 2 .....	.....do	2,939,000
35. Vermont Yankee	Mark I	2,939,000
36. Washington Nuclear 2	Mark II	2,935,000
Other Reactors:		
1. Big Rock Point	GE Dry Containment.	2,939,000
2. Comanche Peak 2	Westinghouse PWR Dry Containment.	2,972,000
3. Three Mile Island 2	B&W PWR-Dry Containment.	2,964,000

The "Other Reactors" listed in Table V have not been included in the fee base. Historically both Big Rock Point and Three Mile Island 2 have been granted either full or partial exemptions from the annual fees. With respect to Big Rock Point, a smaller older reactor, the NRC hereby grants a partial exemption from the FY 1993 annual fees based on a request filed with the NRC in accordance with § 171.11. The NRC, in this final rule, grants a full exemption for Three Mile Island 2 because the authority to operate TMI-2 was revoked in 1979. With respect to Comanche Peak 2, the reactor received an operating license in FY 1993. In accordance with 10 CFR 171.17, Comanche Peak 2 will be billed for a prorated share of the annual fee. The total amount of \$2.2 million to be paid by Big Rock Point and

Comanche Peak 2 in base annual fees has been subtracted from the total amount assessed operating reactors as a surcharge.

Paragraph (b)(3) is revised to change the fiscal year references from FY 1992 to FY 1993. Paragraph (c)(2) is amended to show the amount of the surcharge for FY 1993, which is added to the base annual fee for each operating power reactor shown in Table V. This surcharge recovers those NRC budgeted costs that are not directly or solely attributable to operating power reactors, but nevertheless must be recovered to comply with the requirements of OBRA-90. The NRC has continued its previous policy decision to recover these costs from operating power reactors.

The FY 1993 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

Category of costs	FY 1993 budgeted costs (millions)
1. Activities not attributable to an existing NRC licensee or class of licensee:	
a. Reviews for DOE/DOD reactor projects, West Valley Demonstration Project; DOE Uranium Mill Tailings Radiation Control Act (UMTRCA) actions	\$5.2
b. International cooperative safety program and international safeguards activities; and	8.4

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Category of costs	FY 1993 budgeted costs (mil- lions)	Category of costs	FY 1993 budgeted costs (mil- lions)
c. Low level waste disposal generic activities	6.7	Subtotal budgeted costs ...	26.7
2. Activities not assessed part 170 licensing and inspection fees or part 171 annual fees based on Commission policy:		Less amount to be as- sessed for partial and prorated fees under parts 171	2.2
a. Licensing and inspection activities associated with nonprofit educational insti- tutions; and	1.8	Total budgeted costs	24.5
b. Costs not recovered from part 171 for small entities .	4.6	The annual additional charge is determined as follows:	

$$\frac{\text{Total budgeted costs}}{\text{Total number of operating reactors}} = \frac{\$24.5 \text{ million}}{109.7^6} = \$223,000 \text{ per operating power reactor}$$

On the basis of this calculation, an operating power reactor, Beaver Valley 1, for example, would pay a base annual fee of \$2,972,000 and an additional charge of \$223,000 for a total annual fee of \$3,195,000 for FY 1993.

Paragraph (d) is revised to show, in summary form, the amount of the total FY 1993 annual fee, including the surcharge, to be assessed for each major type of operating power reactor.

Paragraph (e) is revised to show the amount of the FY 1993 annual fee for non-power (test and research) reactors. This includes nonpower reactor licenses issued to nonprofit educational institutions. In FY 1993, \$2,669,000 in costs are attributable to those commercial, nonprofit educational, and non-exempt Federal government organizations that are licensed to operate test and research reactors. Applying these costs uniformly to those nonpower reactors subject to fees results in an annual fee of \$62,100 per

operating license. The Energy Policy Act provided for an exemption for certain Federally owned research reactors that are used primarily for educational training and academic research purposes where the design of the reactor satisfies certain technical specifications set forth in the legislation. The NRC has granted an exemption from annual fees for FY 1992 and FY 1993 to the Veterans Administration Medical Center, Omaha, Nebraska, the U.S. Geological Survey for its reactor in Denver, Colorado and the Armed Forces Radiobiological Research Institute, Bethesda, Maryland for its research reactor.

Section 171.16 Annual fees: Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government agencies licensed by the NRC.

Paragraph (d) is revised to reflect the FY 1993 budgeted costs for materials

licensees, including Government agencies licensed by the NRC. These fees are necessary to recover the FY 1993 generic costs totalling \$57.9 million applicable to fuel facilities, uranium recovery facilities, spent fuel facilities, holders of transportation certificates and QA program approvals, and other materials licensees, including holders of sealed source and device registrations.

Tables VI and VII show the NRC program elements and resources that are attributable to fuel facilities and materials users, respectively. The costs attributable to the uranium recovery class of licensees are those associated with uranium recovery licensing and inspection. For transportation, the costs are those budgeted for transportation research, licensing, and inspection. Similarly, the budgeted costs for spent fuel storage are those for spent fuel storage research, licensing, and inspection.

TABLE VI.—ALLOCATION OF NRC FY 1993 BUDGET TO FUEL FACILITY BASE FEES¹

	Total program element		Allocated to fuel facil- ity	
	Program support \$,K	FTE	\$.K	FTE
NMLL (Research):				
Radiation Protection/Health Effects	\$1,640	5.3	\$350	1.1
Environmental Policy and Decommissioning	1,925	9.0	100	.4
NMLL (RES) Program Total			450	1.5
NMLL (NMSS):				
Fuel Facilities Lic./Inspections	2,500	51.9	1,310	33.2
Event Evaluation		17.2		4.3
Safeguards Licensing/Inspection	440	22.0	440	17.2
Threat and Event Assessment	1,600	14.4	123	1.7
Decommissioning	1,050	24.5	190	5.1

¹ Commanche Peak 2 which was licensed 240 days out of 365 days (0.7 year) in FY 1993 has been

included in the calculation. Commanche Peak 2 will be assessed this surcharge.

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TABLE VI.—ALLOCATION OF NRC FY 1993 BUDGET TO FUEL FACILITY BASE FEES¹—Continued

	Total program element		Allocated to fuel facility	
	Program support \$,K	FTE	\$,K	FTE
Uranium Recovery (DAM SAFETY)	350	9.7	6	.....
NMML (NMSS) Program Total .....	.....	.....	2,069	61.5
NMML (MSIRIE):				
Incident Response .....	.....	3.0	.....	1.0
Total NMML .....	.....	.....	2,519	64.0
Total Base Fee Amount Allocated to Fuel Facilities (millions) .....	.....	.....	217.2	.....
Less Part 170 Fuel Facility Fees (millions) .....	.....	.....	3.5	.....
Part 171 Base Fees for Fuel Facilities (millions) .....	.....	.....	13.7	.....

¹ Base annual fee includes all costs attributable to the fuel facility class of licensees. The base fee does not include costs allocated to fuel facilities for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

TABLE VII.—ALLOCATION OF FY 1993 BUDGET TO MATERIAL USERS BASE FEES¹

	Total		Allocated to materials users	
	Program support \$,K	FTE	\$,K	FTE
NMML (RESEARCH):				
Materials Licensee Performance	\$550	.4	\$550	.4
Materials Regulatory Standards	1,000	12.1	949	11.0
Radiation Protection/Health Effects	1,640	5.3	1,290	4.2
Environmental Policy and Decommissioning	1,925	9.0	1,000	4.8
Total NMML (RES) .....	.....	.....	\$3,789	20.4
NMML (NMSS):				
Licensing/Inspection of Materials Users	\$2,300	104.1	1,200	104.1
Event Evaluation	---	17.2	---	12.8
Threat and Event Assessment	1,600	12.7	89	---
Decommissioning	1,050	24.5	760	18.4
Low level waste—on site disposal	850	27.0	225	1.9
Total NMML (NMSS): .....	.....	.....	\$2,274	137.2
NMML (MSIRIE):				
Analysis and Evaluation of Operational Data	256	8.0	125	5.0
Total NMML Program .....	.....	.....	\$6,188	162.6
Base Amount Allocated to Materials Users (millions) .....	.....	.....	243.6	.....
Less Part 170 Material Users Fees (millions) .....	.....	.....	5.0	.....
Part 171 Base Fees for Material Users (millions) .....	.....	.....	38.6	.....

¹ Base annual fee includes all costs attributable to the materials class of licensees. The base fee does not include costs allocated to materials licensees for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

The allocation of the NRC's \$13.7 million in budgeted costs to the individual fuel facilities is based, as in FY 1991 and FY 1992, primarily on the conferees' guidance that licensees who require the greatest expenditure of NRC resources should pay the greatest annual fee. Because the two high-enriched fuel manufacturing facilities possess strategic quantities of nuclear materials, more NRC generic safety and safeguards costs (e.g., physical security) are attributable to these facilities.

Using this approach, the base annual fee for each facility is shown below.

	Annual fee		Annual fee
	Safeguards and safety		Safeguards and safety
High enriched fuel:		Combustion Engineering (Hematite)	1,137,000
Nuclear Fuel Services	\$3,079,000	Subtotal	\$5,685,000
Babcock and Wilcox	3,079,000	UF ₆ conversion:	
Subtotal	\$6,158,000	Allied Signal Corp	\$619,000
Low Enriched Fuel:		Sequoyah Fuels Corp	619,000
Siemens Nuclear Power	\$1,137,000	Subtotal	\$1,238,000
Babcock and Wilcox	1,137,000		
General Electric	1,137,000		
Westinghouse	1,137,000		

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	Annual fee
	Safeguards and safety
Other fuel facilities (5 facilities at \$111,000 each)	\$555,000
Total	\$13,636,000

One of Combustion Engineering's (CE) low enriched uranium fuel facilities has not been included in the fee base because of the D.C. Circuit Court of Appeals decision of March 16, 1993, and the April 30, 1993 *per curiam* order which directed the Commission to grant an exemption for one of the facilities. As a result of the Court's decision, the NRC grants an exemption for one of CE's low enriched uranium fuel facilities for FY 1993. The NRC therefore has calculated the FY 1993 annual fees for the low enriched fuel category by dividing its budgeted costs among five licenses rather than six licenses as done previously.

The allocation of the costs attributable to uranium recovery is also based on the conferees' guidance that licensees who require the greatest expenditure of NRC resources should pay the greatest annual fee. It is estimated that approximately 50 percent of the \$465,000 for uranium recovery is attributable to uranium mills (Class I facilities). Approximately 27 percent of the \$465,000 for uranium recovery is attributable to those solution mining licensees who do not generate uranium mill tailings (Class II facilities). The remaining 23 percent is allocated to the other uranium recovery facilities (e.g. extraction of metals and rare earths). The resulting annual fees for each class of licensee are:

Class I facilities—\$58,000
Class II facilities—\$25,400
Other facilities—\$21,100

For spent fuel storage licenses, the generic costs of \$681,000 have been spread uniformly among those licensees who hold specific or general licenses for receipt and storage of spent fuel at an Independent Spent Fuel Storage Installation (ISFSI). This results in an annual fee of \$136,200.

To equitably and fairly allocate the \$38.6 million attributable to the approximately 7,400² diverse material users and registrants, the NRC has continued to base the annual fee on the part 170 application and inspection fees. Because the application and inspection fees are indicative of the complexity of the license, this approach

continues to provide a proxy for allocating the costs to the diverse categories of licensees based on how much it costs NRC to regulate each category. The fee calculation also continues to consider the inspection frequency because the inspection frequency is indicative of the safety risk and resulting regulatory costs associated with the categories of licensees. In summary, the annual fee for these categories of licenses is developed as follows:

Annual Fee = (Application Fee + Inspection Fee/Inspection Priority) × Constant + (Unique Category Costs).

The constant is the multiple necessary to recover \$38.6 million and is 2.3 for FY 1993. The unique costs are any special costs that the NRC has budgeted for a specific category of licensees. For FY 1993, unique costs of approximately \$1.9 million were identified for the medical improvement program which is attributable to medical licensees; about \$115,000 in costs were identified as being attributable to radiography licensees; and about \$115,000 was identified as being attributable to irradiator licensees. The changes to materials annual fees for FY 1993 varies compared to the FY 1992 annual fees. Some of the annual fees decrease while other annual fees increase. There are three reasons for the changes in the fees compared to FY 1992. First, the FY 1993 budgeted amount attributable to materials licensees is about 12 percent higher than the FY 1992 amount. Second, the number of licensees to be assessed annual fees in FY 1993 has decreased about 4 percent (about 300 licensees) below a comparative number for FY 1992. Third, the changes in the 10 CFR part 170 license application and inspection fees cause a redistribution of the costs on which the annual fees are based, since these Part 170 fees are used as a proxy to determine the annual fees. The materials fees must be established at these levels in order to comply with the mandate of OBRA-90 to recover approximately 100 percent of the NRC's FY 1993 budget authority. A materials licensee may pay a reduced annual fee if the licensee qualifies as a small entity under the NRC's size standards and certifies that it is a small entity on NRC Form 526.

To recover the \$4.4 million attributable to the transportation class of licensees, about \$1.0 million will be assessed to the Department of Energy (DOE) to cover all of its transportation casks under Category 18. The remaining transportation costs for generic activities (\$3.4 million) are allocated to holders of approved QA plans. The annual fee for

approved QA plans is \$67,400 for users and fabricators and \$1,000 for users only.

The amount or range of the FY 1993 base annual fees for all materials licensees is summarized as follows:

MATERIALS LICENSES BASE ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel.	\$3.1 million.
Part 70—Low enriched fuel.	\$1.1 million.
Part 40—UF ₆ conversion.	\$0.6 million.
Part 40—Uranium recovery.	\$21,100 to \$58,100
Part 30—Byproduct Material.	\$690 to \$26,600. ¹
Part 71—Transportation of Radioactive Material.	\$1,000 to \$67,400.
Part 72—Independent Storage of Spent Nuclear Fuel.	\$136,200.

¹ Excludes the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies which is \$363,600.

Irradiator fee categories 3F and 3G in 10 CFR 171.16(d) are being broadened to include underwater irradiators for irradiation of materials when the source is not exposed for irradiation purposes. Although the sources are not removed from their shielding for irradiation purposes, underwater irradiators are not self-shielded as are the small irradiators in fee Category 3E. The underwater irradiators are large irradiators, and possession limits of thousands of curies are authorized in the licenses. The design of the facility is important to the safe use of both exposed source irradiators and underwater irradiators, and 10 CFR part 36 applies the same requirements to the underwater irradiators where the source is not exposed for irradiation as to the exposed source irradiators.

A new Category 4D is added to 10 CFR 171.16(d) to specifically segregate and identify those licenses which authorize the receipt, possession and disposal of byproduct material, as defined by section 11.e.(2) of the Atomic Energy Act, from other persons. This proposed change is based on the NRC's recognition of potential increased activity related to disposal of 11.e.(2) byproduct material and to better distinguish this unique category of license. Mill licenses subject to the fees in fee Category 2.A.(2) of 10 CFR 171.16 will not be assessed fees under fee Category 4D. All other licenses, that authorize the receipt, from other

² This includes approximately 600 nonprofit educational institutions licenses which were previously exempted from annual fees.

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persons, of section 11.e(2) byproduct material for possession and disposal will be subject to the Category 4D fees including mill licenses that authorize decommissioning, decontamination, reclamation or site restoration activities since they are not assessed annual fees under fee Category 14.

Paragraph (e) is amended to establish the additional charge which is added to the base annual fees shown in paragraph (d) of this final rule. The alternative selected by the NRC for the allocation of LLW costs is discussed at some length in Section II of this notice. The Commission has modified its approach so as to access the budgeted LLW costs to two broad categories of licensees (large LLW generators and small LLW generators) based on historical disposal data. This surcharge, however, continues to be shown, for convenience, with the applicable categories in paragraph (d). Although these NRC LLW disposal regulatory activities are not directly attributable to regulation of NRC materials licensees, the costs nevertheless must be recovered in order to comply with the requirements of OBRA-90. For FY 1993, the additional charge recovers approximately 18 percent of the NRC budgeted costs of \$9.2 million relating to LLW disposal generic activities from small generators which are comprised of materials licensees except fuel facilities, that dispose of LLW. The percentage distribution for FY 1993 has been refined to delete LLW disposed by Agreement State licensees from the base. The FY 1993 budgeted costs related to the additional charge for LLW and the amount of the charge are calculated as follows:

Category of costs	FY 1993 budgeted costs (\$ in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee, i.e., LLW disposal generic activities	9.2

Of the \$9.2 million in budgeted costs shown above for LLW activities, 82 percent of the amount (\$7.5 million) are allocated to the 123 large waste generators (reactors and fuel facilities) included in 10 CFR part 171 resulting in an additional charge of \$61,100 per facility. Thus, the LLW charge will be \$61,100 per HEU, LEU, UF₆ facility and for each of the other 5 fuel facilities. The remaining \$1.7 million is allocated to the material licensees in categories that generate low level waste (1,522 licensees) as follows: \$1,100 per

materials license except for those in Category 17. Those licensees that generate a significant amount of low level waste for purposes of the calculation of the \$1,100 surcharge are in fee Categories 1.B, 1.D, 2.C, 3.A, 3.B, 3.C, 3.L, 3.M, 3.N, 4.A, 4.B, 4.C, 4.D, 5.B, 6.A, and 7.B. The surcharge for licensees in fee Category 17, which also generate and/or dispose of low level waste, is \$16,400.

Of the \$5.4 million not recovered from small entities, \$0.8 million is allocated to fuel facilities and other materials licensees. This results in a surcharge of \$120 per category for each licensee that is not eligible for the small entity fee.

On the basis of this calculation, a fuel facility, a high enriched fuel fabrication licensee, for example, pays a base annual fee of \$3,079,000 and an additional charge of \$61,220 for LLW activities and small entity costs. A medical center with a broad-scope program pays a base annual fee of \$26,800 and an additional charge of \$1,220, for a total annual fee of \$28,020 for FY 1993.

The NRC notes that many licensees have indicated during the past two years that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In particular, this issue has been raised by certain uranium mill licensees who have mills not currently in operation. In responding to licensees about this matter, the NRC has stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that the annual fees will be assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. To remove any uncertainty, the NRC is issuing minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7.

Section 171.19 Payment

This section is revised to give credit for those partial payments made by certain licensees in FY 1993 toward their FY 1993 annual fees. The NRC anticipates that the first, second, and third quarterly payments for FY 1993

will have been made by operating power reactor licensees and some materials licensees before the final rule is effective. Therefore, NRC will credit payments received for those three quarters toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill in order to recover the full amount of the revised annual fee or to make refunds, if necessary. As in FY 1992, payment of the annual fee is due on the effective date of the rule and interest accrues from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule.

Because nonprofit educational institutions will be required to pay annual fees for the first time, the NRC notes two of its regulations relating to payment. The first regulation is 10 CFR 171.19(a) which indicates that the fee payment shall be made by check, draft, money order or electronic fund transfer made payable to the U.S. Nuclear Regulatory Commission. Bills of \$5,000 or more will indicate payment by electronic fund transfer. Payment is due on the effective date of the rule and interest shall accrue from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule. The second regulation relating to payments is 10 CFR 15.35. This regulation provides for payments of debts in installments provided the debtor furnishes satisfactory evidence of inability to pay a debt in one lump sum. In accordance with this regulation, all installment payment arrangements must be in writing and require the payment of interest and administrative charges.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for the final regulation.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VII. Regulatory Analysis

With respect to 10 CFR part 170, this final rule was developed pursuant to Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee

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guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia, *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied, 444 U.S. 1102 (1980). The Court held that—

- (1) The NRC had the authority to recover the full cost of providing services to identifiable beneficiaries;
- (2) The NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations;
- (3) The NRC could charge for costs incurred in conducting environmental reviews required by NEPA;
- (4) The NRC properly included the costs of uncontested hearings and of administrative and technical support services in the fee schedule;
- (5) The NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and
- (6) The NRC's fees were not arbitrary or capricious.

With respect to 10 CFR Part 171, on November 5, 1990, the Congress passed Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). For FYs 1991 through 1995, OBRA-90 requires that approximately 100 percent of the NRC budget authority be recovered through the assessment of

fees. To accomplish this statutory requirement, the NRC, in accordance with § 171.13, is publishing the final amount of the FY 1993 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. OBRA-90 and the Conference Committee Report specifically state that—

(1) The annual fees be based on the Commission's FY 1993 budget of \$540.0 million less the amounts collected from Part 170 fees and the funds directly appropriated from the NWF to cover the NRC's high level waste program;

(2) The annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and

(3) The annual fees be assessed to those licensees that the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment.

Therefore, when developing the annual fees for operating power reactors the NRC continued to consider the various reactor vendors, the types of containment, and the location of the operating power reactors. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

10 CFR part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 490 U.S. 1045 (1989).

10 CFR parts 170 and 171, which established fees based on the FY 1989 budget, were also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S. Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

The NRC's FY 1991 annual fee rule was largely upheld recently by the D.C. Circuit Court of Appeals in *Allied Signal v. NRC*, discussed extensively earlier in this final rule.

VIII. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority through the assessment of user fees. OBRA-90 further requires that the NRC establish a schedule of

charges that fairly and equitably allocates the aggregate amount of these charges among licensees.

This final rule establishes the schedules of fees that are necessary to implement the Congressional mandate for FY 1993. The final rule results in an increase in the fees charged to most licensees, and holders of certificates, registrations, and approvals, including those licensees who are classified as small entities under the Regulatory Flexibility Act. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as appendix A to this final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, registrations, and approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 170, and 171.

Appendix A to This Final Rule—Regulatory Flexibility Analysis for the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational

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requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act, the NRC adopted size standards for determining which NRC licensees qualify as small entities (50 FR 50241; December 9, 1985). These size standards were clarified November 6, 1991 (56 FR 56672). The NRC size standards are as follows:

(1) A small business is a business with annual receipts of \$3.5 million or less except private practice physicians for which the standard is annual receipts of \$1 million or less.

(2) A small organization is a not-for-profit organization which is independently owned and operated and has annual receipts of \$3.5 million or less.

(3) Small governmental jurisdictions are governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000.

(4) A small educational institution is one that is (1) supported by a qualifying small governmental jurisdiction, or (2) one that is not state or publicly supported and has 500 employees or less.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. For FY 1991, the amount collected was approximately \$445 million, and for FY 1992, the amount collected was approximately \$492.5 million. The amount to be collected in FY 1993 is approximately \$518.9.

To comply with OBRA-90, the Commission amended its fee regulations in 10 CFR parts 170 and 171 in FY 1991 (56 FR 31472; July 10, 1991) and FY 1992, (57 FR 32691; July 23, 1992) based on a careful evaluation of over 500 comments. These final rules established the methodology used by NRC in identifying and determining the fees assessed and collected in FY 1991 and FY 1992. The NRC has used the same methodology established in the FY 1991 and FY 1992 rulemakings to establish the fees to be assessed for FY 1993 except for the LLW surcharge. The Commission has changed its policy in one area and will assess annual fees to nonprofit educational institutions.

II. Impact on Small Entities

The comments received on the proposed FY 1991 and FY 1992 fee rule revisions and the small entity certifications received in response to the final FY 1991 and FY 1992 fee rules indicate that NRC licensees qualifying as small entities under the NRC's size standards are primarily those licensed

under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these materials licensees, the NRC estimates that about 18 percent (approximately 1,300 licensees) qualify as small entities. This estimate is based on the number of small entity certifications filed in response to the FY 1991 and FY 1992 fee rules.

The commenters on the FY 1991 and FY 1992 proposed fee rules indicated the following results if the proposed annual fees were not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put it at an extreme disadvantage with its much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.
- Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in about 10 percent of the well logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.
- Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.
- Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Over the past two years, approximately 2,300 license, approval, and registration terminations have been requested. Although some of these terminations were requested because the license was no longer needed or licenses or registrations could be combined, indications are that other termination

requests were due to the economic impact of the fees.

The NRC continues to receive written and oral comments from small materials licensees. These comments indicate that the \$3.5 million threshold for small entities is not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

To alleviate the continuing significant impact of the annual fees on a substantial number of small entities, the NRC considered alternatives, in accordance with the RFA. These alternatives were evaluated in the FY 1991 rule (56 FR 31472; July 10, 1991) and the FY 1992 rule (57 FR 32691; July 23, 1992). The alternatives considered by the NRC can be summarized as follows.

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

The NRC has reexamined the FY 1991 and FY 1992 evaluation of the above alternatives. Based on that reexamination, the NRC continues to support the previous conclusion. That is, the NRC continues to believe that establishment of a maximum fee for small entities is the most appropriate option to reduce the impact on small entities.

The NRC established, and is continuing for FY 1993, a maximum annual fee for small entities. The RFA and its implementing guidance do not provide specific guidelines on what constitutes a significant economic impact on a small entity. Therefore, the NRC has no benchmark to assist in determining the amount or the percent of gross receipts that should be charged to a small entity. For FY 1993, the NRC will rely on the analysis previously completed that established a maximum annual fee for a small entity by comparing NRC license and inspection fees under 10 CFR part 170 with Agreement State fees for those fee categories that are expected to have a substantial number of small entities. Because these fees have been charged to small entities, the NRC continues to believe that these fees or any adjustments to these fees during the past year do not have a significant impact on them. In issuing this final rule for FY 1993, the NRC concludes that the materials license and inspection fees do not have a significant impact on a substantial number of small entities and that the maximum annual small entity fee of \$1,800 be maintained to alleviate the impact of the fees on small entities.

By maintaining the maximum annual fee for small entities at \$1,800, the annual fee for many small entities will be reduced while at the same time materials licensees, including small entities, pay for most of the FY 1993 costs (\$33.2 million of the total \$38.6 million) attributable to them. Therefore, the NRC is continuing, for FY 1993, the

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maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity. Note that the costs not recovered from small entities are allocated to other materials licensees and to operating power reactors.

While reducing the impact on many small entities, the Commission agrees that the current maximum annual fee of \$1,800 for small entities, when added to the part 170 license and inspection fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, as in FY 1992, the NRC will continue for FY 1993 the lower-tier small entity annual fee of \$400 for small entities with relatively low gross annual receipts established in the final rule dated April 17, 1992 (57 FR 13625).

In establishing the annual fee for lower tier small entities, the NRC continues to retain a balance between the objectives of the RFA and OBRA-90. This balance can be measured by (1) the amount of costs attributable to small entities that is transferred to larger entities (the small entity subsidy); (2) the total annual fee small entities pay, relative to this subsidy; and (3) how much the annual fee is for a lower tier small entity. Nuclear gauge users were used to measure the reduction in fees because they represent about 40 percent of the materials licensees and most likely would include a larger percentage of lower tier small entities than would other classes of materials licensees. The Commission is continuing an annual fee of \$400 for the lower tier small entities to ensure that the lower tier small entities receive a reduction (75 percent for small gauge users) substantial enough to mitigate any severe impact. Although other reduced fees would result in lower subsidies, the Commission believes that the amount of the associated annual fees, when added to the license and inspection fees, would still be considerable for small businesses and organizations with gross receipts of less than \$250,000 or for governmental entities in jurisdictions with a population of less than 20,000.

III. Summary

The NRC has determined the annual fee significantly impacts a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirement to consider means of reducing the impact of the proposed fee on small entities. On the basis of its regulatory flexibility analyses, the NRC concludes that a maximum annual fee of \$1,800 for small entities and a lower tier small entity annual fee of \$400 for small businesses and non-profit organizations with gross annual receipts of less than \$250,000, and small governmental entities with a population of less than 20,000, will reduce the impact on small entities. At the same time, these reduced annual fees are consistent with the objectives of OBRA-90. Thus, the revised fees for small entities

maintain a balance between the objectives of OBRA-90 and the RFA. The NRC has used the methodology and procedures developed for the FY 1991 and FY 1992 fee rules in this final rule establishing the FY 1993 fees. Therefore, the analysis and conclusions established in the FY 1991 and FY 1992 rules remain valid for this final rule for FY 1993.

58 FR 45553
Published 8/30/93

10 CFR Parts 170 and 171

RIN 3150 - AE49

FY 1991 and 1992 Final Rule Implementing the U.S. Court of Appeals Decision and Revision of Fee Schedules; 100% Fee Recovery, FY 1993

Correction

In rule document 93-16885 beginning on page 38666 in the issue of Tuesday, July 20, 1993, make the following corrections:

1. On page 38682, in Table IV., under the caption Nuclear Material & Low Level (NMLL), in the first line, "NMLL (NMSS)" should appear as a separate caption, on a separate line.

2. On the same page, in the same table, under the same caption, in the sixth line, "NMLL (RES)" should appear as a separate caption, on a separate line.

3. On the same page, in the table, under the heading Allocated to power reactors, in the second column, insert "\$" before the entries for Total Base Fee Amount Allocated to Power Reactors (millions); Less Estimated Part 170 Power Reactor Fees (millions); and Part 171 Base Fees for Operating Power Reactors (millions).

4. On page 38685, in the equation, insert "per" before "operating".

5. On page 38686, in Table VI, under the heading Allocated to fuel facility, in the entry for Less Part 170 Fuel Facility Fees (millions), in the fourth column, insert "3.5".

6. On the same page, in the same table, under the same heading, in the entry for Part 171 Base Fees for Fuel Facilities (millions), "13.7" should have appeared in the fourth column and should be removed from the fifth column.

7. On the same page, in Table VII, under the caption NMLL (MSIRIE), in the second line, remove "4".

8. On the same page, in the same table, in footnote 1, remove "\$".

§ 170.31 [Corrected]

9. On page 38693, in the Schedule of Materials Fees, in entry 15., paragraph B., in the seventh line, insert "review" before "only".

§ 171.16 [Corrected]

10. On page 38700, in § 171.16(e), paragraphs (e), (1) and (2) should appear as regulatory text, not as footnotes to the table.

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59 FR 36895
Published 7/20/94
Effective 8/19/94

10 CFR Parts 170 and 171

RIN: 3150-AF03

Revision of Fee Schedules; 100% Fee Recovery, FY 1994

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the licensing, inspection, and annual fees charged to its applicants and licensees. The amendments are necessary to implement Public Law 101-508, enacted November 5, 1990, which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year (FY) 1994 less amounts appropriated from the Nuclear Waste Fund (NWF). The amount to be recovered for FY 1994 is approximately \$513 million.

EFFECTIVE DATE: August 19, 1994.

ADDRESSES: Copies of comments received and the agency workpapers that support these final changes to 10 CFR Parts 170 and 171 may be examined at the NRC Public Document Room at 2120 L Street, NW. (Lower Level), Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-415-6213.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Responses to Comments.
- III. Final Action—Changes Included In The Final Rule.
- IV. Section-by-Section Analysis.
- V. Environmental Impact: Categorical Exclusion.
- VI. Paperwork Reduction Act Statement.
- VII. Regulatory Analysis.
- VIII. Regulatory Flexibility Analysis.

IX. Backfit Analysis.

I. Background

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), enacted November 5, 1990, requires that the NRC recover approximately 100 percent of its budget authority less the amount appropriated from the Department of Energy (DOE) administered NWF for FYs 1991 through 1995 by assessing fees. OBRA-90 was amended in 1993 to extend the NRC's 100 percent fee recovery requirement through 1998.

The NRC assesses two types of fees to recover its budget authority. First, license and inspection fees, established in 10 CFR Part 170 under the authority of the Independent Offices Appropriation Act (IOAA), 31 U.S.C. 9701, recover the NRC's costs of providing individually identifiable services to specific applicants and licensees. The services provided by the NRC for which these fees are assessed include the review of applications for the issuance of new licenses or approvals, amendments to or renewal of licenses or approvals, and inspections of licensed activities. Second, annual fees, established in 10 CFR Part 171 under the authority of OBRA-90, recover generic and other regulatory costs not recovered through 10 CFR Part 170 fees.

Subsequent to enactment of OBRA-90, the NRC published six final fee rules after evaluation of public comments. On July 10, 1991 (56 FR 31472), the NRC published a final rule in the *Federal Register* that established the Part 170 professional hourly rate and the materials licensing and inspection fees, as well as the Part 171 annual fees, to be assessed to recover approximately 100 percent of the FY 1991 budget. In addition to establishing the FY 1991 fees, the final rule established the underlying basis and methodology for determining both the 10 CFR Part 170 hourly rate and fees and the 10 CFR Part 171 annual fees. The FY 1991 rule was challenged in Federal court by several parties. The U.S. Court of Appeals for the District of Columbia Circuit rendered its decision on those challenges on March 16, 1993, in *Allied-Signal v. NRC*, remanding two issues to the NRC for further consideration (988 F.2d 146 (D.C. Cir. 1993)). The court decision was also extended to cover the FY 1992 fee rule by court order dated April 30, 1993.

On April 17, 1992 (57 FR 13625), the NRC published in the *Federal Register* two limited changes to 10 CFR Parts 170 and 171. The limited changes became effective May 18, 1992. The limited change to 10 CFR Part 170 allowed the NRC to bill quarterly for those license fees that were previously billed every six months. The limited change to 10 CFR Part 171 lowered in some cases the maximum annual fee of \$1,800 assessed a materials licensee who qualifies as a small entity under the NRC's size standards. A lower tier small entity fee of \$400 per licensed category was established for small business and non-profit organizations with gross annual receipts of less than \$250,000 and small governmental jurisdictions with a population of less than 20,000.

On July 23, 1992 (57 FR 32691), and July 20, 1993 (58 FR 38666), the NRC published final rules in the *Federal Register* that established the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1992 and FY 1993 respectively. The basic methodology used in the FY 1992 and FY 1993 final rules was unchanged from that used to calculate the 10 CFR Part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR Part 170, and the 10 CFR Part 171 annual fees in the final rule published July 10, 1991 (56 FR 31472). The methodology for assessing low-level waste (LLW) costs was changed in FY 1993 in response to the judicial decision mentioned earlier. This change was explained in detail in the FY 1993 final rule published July 20, 1993 (58 FR 38669-72). In brief, the NRC created two groups—large waste generators and small waste generators. Licensees within each group are charged a uniform flat fee.

On March 17, 1994 (59 FR 12539), the NRC reinstated the annual fee exemption for nonprofit educational institutions after notice and comment. In response to the March 16, 1993, judicial decision, the exemption had been eliminated in the final rule published by NRC on July 20, 1993 (58 FR 38666).

The American College of Nuclear Physicians and the Society of Nuclear Medicine filed a Petition for Rulemaking which included a request that the Commission exempt medical licensees from fees for services provided

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in nonprofit institutions. The Commission denied that request on March 17, 1994 (59 FR 12555).

Section 2903(c) of the Energy Policy Act of 1992 required the NRC to undertake a broad review of its annual fee policies under Section 6101(c) of OBRA-90, solicit public comment on the need for policy changes, and recommend changes in existing law to the Congress that the NRC found were needed to prevent the placement of an unfair burden on certain NRC licensees. To comply with the Energy Policy Act requirements, the NRC reviewed more than 500 public comments submitted in response to the request for comment published in the Federal Register on April 19, 1993 (58 FR 21116), and sent its report to Congress on February 23, 1994. A copy of this report has been placed in the Public Document Room.

On May 10, 1994 (59 FR 24065), the NRC published its proposed rule for FY 1994 establishing the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1994, less the appropriation received from the NWF. The basic approach, policies, and methodology used in the proposed rule were unchanged from those used to calculate the 10 CFR part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR part 170, and the 10 CFR part 171 annual fees set forth in the final rules published July 10, 1991 (56 FR 31477), July 23, 1992 (57 FR 322691), and July 20, 1993 (58 FR 38666), with the following exceptions: (1) The Commission has reinstated the annual fee exemption for nonprofit educational institutions; and (2) in this final rule, the NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. Resources for these activities had previously been included in overhead, but are now assigned directly to the class of licensees that they support. Because this direct assignment results in a reduction of overhead costs allocated to each FTE, the cost per FTE is about 3 percent less than it would have been without the additional direct assignment.

On May 19, 1994 (59 FR 26097) the NRC amended its fee regulations in 10 CFR part 171 to establish revised FY 1991 and FY 1992 surcharges for NRC licensees. The revised surcharges reflect the revised method of allocating low-level waste (LLW) costs adopted by the Commission in the FY 1993 final fee rule published July 20, 1993 (58 FR

38666). Refunds/credits totalling \$2.2 million will be given to certain NRC materials licensees as a result of the revised surcharges for FY 1991 and FY 1992.

II. Responses to Comments

The NRC received thirty-three comments on the proposed rule. Although the comment period ended on June 9, 1994, the NRC has reviewed and evaluated all comments received.

Copies of all comment letters received are available for inspection in the NRC Public Document room, 2120 L Street, NW (lower level) Washington, DC.

Many of the comments were similar in nature. For evaluation purposes, these comments have been grouped, as appropriate, and addressed as single issues in this final rule. The comments are as follows:

A. Fee Legislation

1. *Comment.* Several commenters noted that NRC had completed its report on fee policy mandated by the Energy Policy Act of 1992 and had sent a report to Congress with legislative recommendations. They expressed their agreement with the legislative recommendation in the report that OBRA-90 be amended to relax the requirement to recover 100 percent of its budget and remove certain costs from the fee base, thereby eliminating many of the burdens they deem to be inequitable. They urged the NRC to work with Congress to modify OBRA-90 to make the assessment of fees more equitable across the board.

Response. The need for legislation is beyond the scope of this rulemaking proceeding. The NRC will continue to work with Congress on fee issues.

2. *Comment.* Several commenters stated that it is very important for the NRC to control its internal costs in order for the nuclear industry to be successful in reducing overall program costs. One commenter suggested that the NRC consider staff reductions and other management improvements to reduce budget needs based on a decline in the number of materials licensees.

Another commenter commended the NRC on its willingness and ability to hold the line on, and indeed reduce, its recoverable budget for FY 1994. While noting that the proposed FY 1994 annual fees for power reactors are lower than those assessed in FY 1993, commenters from utility licensees or their representatives believe that further reductions are possible, especially in the areas where power reactor licensees are required to unfairly subsidize cost recovery for activities that benefit all licensees or for activities that are

unrelated to the power reactor class of licensees. While encouraged by the recent recommendations for legislative changes made by the NRC to Congress in the report required by the Energy Policy Act of 1992, commenters recommended that NRC consider the following actions it can take now without waiting for legislative changes:

(1) Reduce costs by eliminating or deferring lower priority research and generic rulemaking activity;

(2) Reduce the amount to be collected under part 171 by increasing part 170 licensing and inspection fees;

(3) Raise the lower tier small entity fee; and

(4) Use an annual escalation, e.g., CPI or some equivalent index, of small entity fee limits which have stayed at \$400 and \$1,800 since they were set two years ago.

Response. The NRC is working to improve the internal efficiency and effectiveness of its program as a means of controlling operating costs and, therefore, keeping fees billed to licensees as low as practicable. Economies have been achieved through the elimination of the NRC's uranium recovery field office in Denver, Colorado and consolidating the agency's two smallest regional offices—Regions IV and V. The NRC is tightening its financial operations by increasing the effectiveness and efficiency of its program financing. As a result of these efforts, the NRC proposed and Congress approved a \$12.7 million rescission (reduction) to the original appropriation enacted for FY 1994. Therefore, the total amount to be recovered from fees from all classes of licensees in FY 1994 is about \$6 million less than the amount to be recovered in FY 1993.

The Chief Financial Officers Act (CFO) requires that the NRC conduct a biennial review of fees and other charges imposed by the Agency for its services and revise these charges to reflect the costs incurred in providing those services. The 10 CFR Part 170 licensing and inspection fees were increased significantly for some materials licensees in FY 1993 as a result of the first CFO biennial review. The 10 CFR Part 170 fees for FY 1995 will be revised to reflect the results of the second CFO review.

On April 7, 1994 (59 FR 16513), the Small Business Administration (SBA) issued a final rule changing its size standards. This rule increased the receipts-based SBA size standards due to inflation. The NRC is considering proposing amendments to the NRC size standards that would reflect the SBA action. Any amendments to the NRC size standards will be submitted to SBA

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for approval and published in the Federal Register for public notice and comment as required by the Small Business Credit and Business Opportunity Enhancement Act of 1992 (Pub. L. 102-366). The NRC will reexamine the annual fees assessed for small entities once the NRC completes its evaluation of the NRC size standards, which is expected to be done in FY 1995.

The NRC in this final FY 1994 fee rule is continuing a maximum annual fee of \$1,800 and \$400 per licensed category, respectively, for those licensees who can qualify as small entities under NRC size standards. The impact of the fees for FY 1994 on small entities has been evaluated in the Regulatory Flexibility Analysis (see Appendix A of this final rule). The small entity subsidy in this final fee rule has been calculated on that basis.

B. Fee Methodology

1. Hourly Rate

Comment. Several commenters indicated that the hourly rate of \$133 is excessive and cannot be justified. These commenters noted that the rate is considerably higher than the typical industry charge-out rate for direct employees and equals or exceeds the hourly charges for senior consultants at major national consulting organizations. Other commenters supported the proposed removal of costs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste from overhead and their direct assignment to the reactor and materials programs. Commenters stated that this is an improvement in that it better defines the beneficiaries of certain regulatory activities and more equitably allocates the fees for services provided.

Response. As indicated in previous final rules, the NRC professional hourly rate is established to recover approximately 100 percent of the agency's Congressionally approved budget, less the appropriation from the NWF, as required by OBRA-90. Both the method and budgeted costs used by the NRC in the development of the hourly rate of \$133 for FY 1994 are discussed in detail in Part III, Section-by-Section Analysis, for § 170.20 of the proposed rule (59 FR 24069; May 10, 1994) and the same section of this final rule. For example, Table II shows the direct FTEs (full time equivalents) by major program for FY 1994 and Table III shows the budgeted costs (salaries and benefits, administrative support, travel and other G&A contractual support) that

must be recovered through fees assessed for the hours expended by the direct FTEs. As indicated in the proposed rule and supported by the commenters, the NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. Resources for these activities had previously been included in overhead but are now directly assigned to the class of licensees they support. This change results in the increase in the hourly rate being less than it would have been otherwise. Given the increase in the costs to be recovered through the hourly rate, including increases in the cost of doing business (e.g., inflation), it is necessary to increase the 1994 hourly rate by less than one percent to recover 100 percent of the budget as required by OBRA-90. The specific details regarding the budget for FY 1994 are documented in the NRC's publication "Budget Estimates, Fiscal Year 1994" (NUREG-1100, Volume 9). Copies of NUREG-1100, Vol. 9 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, DC 20402-9328. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street, NW (Lower Level), Washington, DC 20555-0001.

2. Fees Based on Other Factors

Comment. As in FYs 1991-1993, commenters indicated that NRC should assess fees based on the amount or type of material possessed, the number of radioactive sources, the sales generated by the licensed location, the competitive condition of certain markets and the effect of fees on domestic and foreign competition.

Response. The issues of basing fees on the amount of material possessed, the frequency of use of the material, the size of the facilities, and market competitive positions, was addressed by the NRC in previous rules and in the Regulatory Flexibility Analysis in Appendix A to the final rule published July 10, 1991 (56 FR 31511-31513). The NRC did not adopt that approach because it would require licensees to submit large amounts of new data and would require additional NRC staff to evaluate the data submitted and to develop and administer even more complex fee schedules. The NRC continues to believe that uniformly allocating the

generic and other regulatory costs to the specific licensee within a class to determine the amount of the annual fee is a fair, equitable, and practical way to recover those costs and that establishing reduced annual fees based on gross receipts (size) is the most appropriate approach to minimize the impact on small entities. Therefore, NRC finds no basis for altering its approach at this time. This approach was upheld by the D.C. Circuit in its March 16, 1993, decision in *Allied-Signal*.

3. High-Level Waste

Comment. One commenter stated that the Department of Energy (DOE) should pay, through user fees, for NRC's costs related to DOE's high-level waste (HLW) activities at Yucca Mountain.

Response. All of NRC's direct costs related to the disposal of civilian high-level waste in DOE's geologic repository are paid for with funds appropriated from the Nuclear Waste Fund (NWF). For FY 1994, the budgeted amount appropriated to the NRC from the NWF is about \$22 million. The amount appropriated from the NWF is subtracted from the total NRC appropriation, and is therefore not included in the fee base. This is shown in Table I. Thus, no NRC fees are assessed to recover the direct HLW costs.

C. Specific Fee Issues—Part 170

1. Fees for Special Projects.

Comment. Several commenters supported the proposed change in 10 CFR part 170 special project fees whereby the definition would be revised to indicate that 10 CFR part 170 fees will not be assessed for certain reports submitted to the NRC. Rather, commenters point out these costs are more appropriately assessed as 10 CFR part 171 annual fees because the related activities are in support of generic efforts such as development of regulatory guidance applicable to a class of licensees. One commenter, while supporting the proposed change, stated that the terms "alternate method", "reanalysis", and "unreviewed safety issue" are imprecise and should be further defined or explained. Another commenter requested that the NRC reinstate a fee ceiling for topical report reviews. The commenter indicated that a fee ceiling would encourage the submittal of topical reports and contribute to the advance of the state-of-the-art in the nuclear industry and resultant improvement in nuclear plant safety.

Response. The NRC has revised the definition of special projects as

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provided in § 170.3 of the regulations to indicate that 10 CFR part 170 fees will not be assessed for certain requests/reports. Based on a commenter's suggestion, the terms "alternate method", "reanalysis", and "unreviewed safety issue" have been further explained in section IV, Section-by-Section Analysis.

The NRC indicated in the FY 1991 final fee rule that it had decided to eliminate the ceiling for topical report reviews based on the 100 percent recovery requirement and congressional guidance that each licensee or applicant pay the full costs of all identifiable regulatory services received from the NRC. Further, the NRC costs for topical reports reviews vary significantly depending on the particular topical report reviewed. This makes it impractical to establish an equitable ceiling or flat fee (56 FR 31478; July 10, 1991). Recently, the Commission revisited this issue as part of its review of fee policy that was required by EPA-92. The policy of assessing 10 CFR part 170 fees, without a ceiling, for the review and approval of topical reports was reconfirmed. For these reasons, the NRC is not establishing a fee ceiling for topical reports in this final rule.

2. Fees for Reciprocity

Comment. The NRC charges Agreement State licensees who provide services in non-Agreement States, "reciprocity fees". A few commenters indicated that they were opposed to the fees for reciprocity, particularly the proposed fees for revisions to information submitted on the NRC Form-241 filed by 10 CFR 150.20 general licensees. They stated that fees are an unnecessary burden and suggested that the NRC reconsider its decision to increase the current fees and add additional charges for reciprocity licensees. They stated that these costs would have to be included in proposals for work in non-Agreement States and that, as small firms, they could not absorb such costs and remain competitive with larger firms offering similar services. One commenter suggested that the fee for revisions to NRC Form 241 be established at \$25 to \$50 per revision rather than \$200 as proposed. Commenters questioned whether the establishment of the reciprocity fees is an effort to restrict survey activities to the home-State of the company because the additional costs do not make it feasible to even consider bidding for projects out of the state. Commenters claimed that this allows larger, wealthier companies the opportunity to bid for and secure out-of-state work. Other commenters

supported the reciprocity fees, including the proposed fees for revisions. They encouraged NRC to assess fees for services provided specific classes of licensees and to reduce the costs classified as overhead.

Response. The NRC is adopting the approach contained in the proposed rule as this is consistent with the Congressional mandate that, to the extent practicable, a class of licensees bear the costs of providing regulatory services to them. Other approaches suggested by commenters would have the effect of shifting the costs of reviewing revisions to Form 241 to other classes of licensees. Agreement State licensees requesting reciprocity for activities conducted in non-Agreement States or in offshore waters are subject to 10 CFR 150.20. The first time within a calendar year that an Agreement State licensee conducts activities in non-Agreement States or in offshore waters, it must file a completed NRC Form 241. Revisions to the initial NRC Form 241 are filed for review and authorization when persons using the 10 CFR part 150.20 general license either add locations of work, use different radioactive material or perform additional work activities in a non-Agreement State. Information submitted to the NRC by the 10 CFR 150.20 general licensee that clarifies or deletes specific locations or work sites, work site contacts, or dates of work is considered by the NRC to be a clarification, not a revision. Changes in the equipment to be used under the 10 CFR 150.20 general license do not require a revision if there is no change in (1) activity to be conducted, (2) the radioactive material to be used, and (3) if the Agreement State license authorizes the new equipment.

The fee of \$700 for the initial filing of Form-241 is the same as that assessed in FY 1993. The fee of \$200 for revisions to the Form-241 has been added to this final rule. The reciprocity fees established by the NRC are not intended to restrict companies from doing work in non-Agreement States. The fees will allow the NRC to recover the costs it expends in reviewing initial applications and revisions filed by 10 CFR part 150.20 general licensees. That is, the fee is intended to recover the cost of identifiable services to a specific applicant in accordance with OBRA-90 and the IOAA. Fee Category 16 of 10 CFR part 170.31 has been revised to add a fee of \$200 for each revision filed by Agreement State licensees. The revision fee will be due at the time the applicant files a revision to information submitted on the initial Form-241 with the NRC.

3. Fees for Irradiators

Comment. One commenter indicated that underwater irradiators should not be placed, for fee purposes, in fee Categories 3F and 3G, the same category as "panoramic" or "cell" type irradiators, because the amount of regulation pertaining to unshielded source irradiators is much greater than that which applies to underwater irradiators. The commenter believes the license should be classified as Category 3E, a self-shielded irradiator. The commenter states that the relative complexity of the two designs dictates that this be the case. Therefore, licensing, inspection, and other NRC activities dealing with underwater irradiators must consume much less time and effort compared to their "cell" or "panoramic" counterparts.

Response. The Commission will continue to place underwater irradiators in fee Categories 3F and 3G. Although the sources are not removed from their shielding for irradiator purposes, underwater irradiators are not self-shielded as are the small irradiators in fee Category 3E. The underwater irradiators are large irradiators and possession limits of thousands of curies are authorized in the license. As a result, more regulatory effort is required to regulate underwater irradiators than is required to regulate the small irradiators in fee Category 3E. For example, the provisions of 10 CFR part 36 apply the same requirements to both the underwater irradiators where the source is not exposed for irradiation and the exposed source irradiators. The average cost of conducting license reviews and performing inspection of the underwater irradiators where the source remains shielded during irradiation are similar to the costs for irradiators where the source is exposed during irradiation.

D. Specific Fee Issues—Part 171

1. Exemption From Fees for State-Owned Reactors.

Comment. Several commenters supported the proposed exemption from annual fees for State-owned research reactors. These commenters indicated that the reactors are used primarily for educational training and academic research purposes and contribute significantly to the national research effort and thereby provide significant externalized benefits to society.

Response. The NRC, in this final rule, will amend both §§ 170.11(a) and 171.11(a)(2) to provide that State-owned research reactors used primarily for educational training and academic research purposes will be exempt from

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fees. The proposed rule would have amended only 10 CFR part 171. The NRC believes that both of these changes are consistent with the legislative intent of the Energy Policy Act of 1992 that government-owned research reactors be exempt from fees if they meet the technical design criteria of the exemption and are used primarily for educational training and academic research purposes.

2. Annual Fee for Uranium Recovery Facilities

Comment. While supporting the NRC's proposed first-time assessment of a \$1.5 million annual fee to the Department of Energy (DOE) for Uranium Mill Tailing Control Act (UMTCA) activities, several commenters strongly objected to the proposed annual fees for uranium recovery licensees. They agree that the NRC should be reimbursed by the collection of reasonable fees commensurate with services provided but indicated that the proposed fees are not equitable or reasonable and have not been implemented in a fair and equitable manner. They believe that the Class I fees for mill licensees are entirely disproportionate to the degree of NRC's involvement with the uranium recovery sites. Commenters indicated that the large increases in fees for FY 1994 (approximately \$36,000 per mill) demonstrate again the inconsistent and fluctuating nature of the NRC fee system. These licensees asserted that they have no means of anticipating or budgeting for the fees and therefore large increases are unacceptable. One commenter stated that the NRC's argument that the fees have increased because the initial licensing of Envirocare's 11.e(2) facility is complete is irrelevant and without merit because Envirocare's license is a Class 4D byproduct disposal facility and not a uranium recovery license. Commenters note that while the amount to be recovered from uranium recovery licenses was \$465,000 for FY 1993, the amount to be recovered for FY 1994 increased to \$2.1 million—a 350 percent increase. Commenters state that regulatory services to the industry have not increased from FY 1993 to FY 1994. Commenters find this situation particularly troubling as they believe the costs for uranium recovery facilities should have decreased with the closure of the Uranium Recovery Field Office (URFO) in Denver, Colorado, which was described by NRC "as a cost reduction measure to uranium recovery licensees".

One commenter argues that the annual fee of \$8,700 for a Category 4D

license is not justified when one considers the fee of \$94,300 for a mill license, a difference of \$85,600. The commenter states that this disparity is so great that it cannot be explained as anything short of arbitrary and capricious. The commenter asserted that to be equitable, Category 4D licenses should be assessed the same fees as a mill in fee Category 2.A.(1), Class I, because commercial byproduct disposal sites are analogous to uranium recovery tailings impoundments and essentially require the same regulatory oversight.

One commenter was concerned that the new fees collected from DOE will not be used to decrease the fees placed on other uranium recovery licensees.

Response. Contrary to the commenter's claim, the total budget authority to be recovered through fees from Title II uranium recovery licensees has decreased over the past two years. The following table shows the NRC budget authority for Title II uranium recovery licensees for FY 1992, FY 1993, and FY 1994.

Title II facilities	Dollars in thousands		
	FY 1992	FY 1993	FY 1994
Total Budget Authority ..	\$3,668	\$3,065	\$2,839
Less 10 CFR Part 170 Fees	-1,700	-2,600	-2,200
Total Annual Fees .	1,968	465	639

As shown above, the NRC total budget authority for commercial uranium recovery licensees has steadily decreased from \$3,668,000 in FY 1992 to \$2,839,000 in FY 1994, a 23 percent decrease since FY 1992. However, because of the relatively large collection of 10 CFR Part 170 fees in FY 1993 as a result of the NRC licensing review efforts associated with the Envirocare license application, the FY 1993 amount of \$465,000 to be collected through annual fees is \$174,000 less than the FY 1994 annual fee amount of \$639,000. In FY 1993, the NRC estimated that approximately \$2.6 million would be collected from 10 CFR 170 fees, including fees for the major review work for the Envirocare 11.e(2) license. The Envirocare license was issued on November 19, 1993. Therefore, the 10 CFR Part 170 fees estimated to be collected in FY 1994 have decreased.

Another reason for the increase in FY 1994 annual fees for commercial uranium recovery licensees is a reduction in the number of licensees. In

FY 1993 there were 14 uranium recovery licensees subject to annual fees, compared with 12 licensees in FY 1994. This is a decrease of 2 licensees (or 14 percent). Because costs are allocated to a class of licensees, any terminations that occur within the class will raise the annual fees for the remaining licensees within that class in order for the NRC to collect approximately 100 percent of its budget in fees. The generic and other regulatory costs allocated to a class of licensees under 10 CFR Part 171 are not dependent on the number of licensees in a class.

While the total amount of annual fees to be recovered from all uranium recovery licensees, commercial (Title II) and DOE (Title I) is \$2.1 million in FY 1994, \$1.5 million of this amount is for DOE Uranium Mill Tailing Control Act (UMTRCA) activities. The \$1.5 million related to DOE UMTRCA activities is being paid by DOE in FY 1994, leaving the \$0.6 million to be paid by the commercial Title II facilities. The budget for DOE UMTRCA activities does not affect commercial uranium recovery license fees in FY 1994, nor did it affect their fees prior to FY 1994. As noted by the commenters, DOE is being assessed a \$1.5 million annual fee in FY 1994 (10 CFR 171.16(d), fee Category 18b). For FYs 1991–1993, the costs for DOE UMTRCA activities were assessed to operating power reactors as a surcharge because DOE was not an NRC licensee (10 CFR 171.15(c)(2)). In FY 1994, the costs for UMTRCA activities were moved from the power reactor class of licensees to the uranium recovery class because as of September 21, 1993, DOE became a general licensee of the NRC (10 CFR 40.27) because post-reclamation closure of the Spook, Wyoming site had been achieved. As a result, DOE will be billed for the costs (\$1.5 million in FY 1994) associated with NRC's UMTRCA review and all activities associated with the facilities assigned to DOE under UMTRCA.

The statement made by a commenter that fees collected from DOE will not be used to decrease NRC's license fees is not correct. The \$1.5 million to be collected from DOE will not be assessed to operating power reactors who have paid these costs since FY 1991. Therefore, the fees for operating power reactors will decrease as a result of the reallocation of costs.

Based on the comments regarding the annual fee for licensees authorizing the disposal of 11e(2) byproduct material, the NRC has reexamined its allocation of the budget for Title II uranium recovery activities. Based on this reexamination and the comments

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received, the NRC has concluded that the part of the budgeted costs for the uranium recovery class of licensees should be allocated to licenses that authorize receipt and disposal of 11e.(2) byproduct material, because some of these budgeted resources are used to regulate these licensees. Thus, the \$639,000 to be recovered in annual fees will be recovered from fee category 2.A.(2) Class I facilities, Class II facilities and Other facilities, plus licenses authorizing disposal of 11e.(2) byproduct material. Additionally, the Commission has determined that for licenses issued for the primary purpose of disposal of 11e.(2) byproduct material (e.g., the license issued to Envirocare in FY 1994) the annual fee should be 90 percent of the fee for a Class I mill. This is based on a determination that an estimated 90 percent of the budget for regulating Class I mills is related to the mill tailings and the remaining 10 percent to the processing of the ore. Therefore, since essentially the same regulations apply to the mill tailings generated by a Class I mill and the 11e.(2) byproduct material received by a licensee whose primary purpose is to dispose of 11e.(2) byproduct material, the annual fee for a licensee whose primary purpose is the disposal of 11e.(2) byproduct material should be the same as that portion (90 percent) of the annual fee for a Class I facility that is related to the mill tailings. The annual fee for non-operating mills that accept 11e.(2) byproduct material for disposal in tailings piles created by mill operations will not be changed, because such disposal is incidental to the existing tailings that were generated prior to elimination of the mill's authority to operate and the Commission's policy is not to assess an annual fee to non-operating facilities. As a result of the above changes the base annual fee for a Class I facility will be reduced from \$94,300 to \$74,500 for FY 1994. The annual fee for licenses with the primary purpose of disposal of 11e.(2) byproduct material will be \$67,000.

3. Annual Fee for Fuel Facilities

a. *Comment.* Two commenters objected to the proposed reclassification of General Atomics' (GA) special nuclear material license from one subclass to another. Commenters indicated that such a reclassification, with the attendant increase in annual fees, would have the further effect of forcing GA to shut down the manufacture of a limited number of TRIGA research reactor fuel elements, thereby eliminating any U.S. source for this type of reactor fuel. Commenters

argued that the licensee is not a "fuel facility" in the same sense as other fee Category 1.A.(1) licensees, in that all of the licensees in fee Category 1.A.(1) are large suppliers of light water reactor fuel to the commercial power industry or the U.S. Navy. Commenters stated that reclassifying the license is inconsistent with the NRC's stated underlying basis of charging a class of licensees for NRC costs attributable to that class of licensees particularly when one considers, for comparison purposes, the special nuclear material (SNM) throughput, facility size, employment numbers, complexity of processes, chemical/physical forms of SNM, and number of process steps. Commenters therefore concluded that the GA license should not be reclassified.

General Atomics, whose license is to be reclassified, commented that after three years of being classified as a fee Category 1.A.(2) licensee, there is no justification for suddenly reclassifying the license as a fee Category 1.A.(1) fuel facility, because there has been no change of any kind in the activities or licensing status since 1991 that would warrant reclassification of the facility. GA also contends that it is unfair to reclassify the license after the beginning of the fiscal year and to impose more than an eight-fold increase in the fee associated with the new category without the licensee having the opportunity to take licensing action to avoid the fee. GA states that when the initial rule for 100 percent recovery was published in FY 1991, the NRC recognized that many licensees might wish to avoid or minimize the fees by terminating or modifying their licenses, and for that reason provided a 30-day period before the effective date of the rule for a licensee to file a request to terminate the license or request a possession-only license and thereby avoid paying the annual fee. GA also stated that imposition of the proposed fee would force them to significantly raise its unit fuel prices to recover the eight-fold fee increase and that many of its customers for research reactor fuel are typically low-budget research facilities such as university research reactors, many of which are operated by nonprofit educational institutions.

Response. The NRC established fuel facilities as a separate class of licensees in FY 1991. Within the class, there are four subclasses of licensees described in 10 CFR 171.16(d): high-enriched uranium (HEU) fuel fabrication, low-enriched uranium (LEU) fuel fabrication, all other materials licenses authorizing critical quantities of special nuclear material, and UF₆ converters. One of the questions raised by the

commenters is whether GA license SNM-696 should be placed in the LEU fuel fabrication facility subclass (fee category 1.A.(1)) or the other facility subclass authorizing critical quantities of special nuclear material (fee category 1.A.(2)). Fee Category 1.A.(1) of 10 CFR 171.16(d) is intended to cover those licenses that authorize the possession and use of uranium 235 or plutonium for fuel fabrication activities. In the proposed rule for FY 1994, the NRC concluded that license SNM-696, held by GA, would be reclassified from fee Category 1.A.(2) (all other materials licenses authorizing critical quantities of special nuclear material) to fee Category 1.A.(1) (a low-enriched fuel fabrication facility). This reclassification is based on the fact that (1) the license authorizes the possession and use of uranium 235 for fuel fabrication activities and (2) GA manufactures TRIGA research reactor fuel elements using low-enriched fuel. As a result, the proper classification for license SNM-696 is fee category 1.A.(1) (low-enriched fuel fabrication). In the past, this license was improperly categorized by NRC and as a result, General Atomics was assessed substantially lower fees over the past three years than it should have been. Rather than continue using an incorrect fee classification for this license, now that the NRC is aware of its administrative error, this final rule places the license in its proper fee category. The NRC recently addressed a similar classification issue in response to a Babcock and Wilcox (B&W) request that their LEU fuel fabrication facility be reclassified from fee category 1.A.(1) (LEU facility) to fee category 1.A.(2) (all other materials licenses authorizing critical quantities of special nuclear material). On January 7, 1994, the NRC denied this request for reasons similar to those stated above for the General Atomics license.

The other question raised by the commenter is whether the fee for the GA license should be the same as the other LEU fuel fabrication licenses because their fuel and process is different. That is, would assessing GA the same fee as other LEU fuel fabrication licensees represent a disproportionate allocation of costs to GA. B&W has also raised similar questions relative to their LEU facility. The NRC is considering B&W's request for a partial exemption from annual fees under 10 CFR 171.11(d). This request is currently under review. Some of the comments received concerning the GA fuel facility are similar to the arguments presented by B&W for an exemption. GA states that "Reclassifying GA as a Category 1.A.(1)

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licensee is inconsistent with the NRC's stated underlying basis of 'charging a class of licensees for NRC costs attributable to that class of licensees.' It asserts that by any measure of comparison, e.g., SNM * * * complexity of processes, chemical/physical forms of SNM, number of process steps, etc., GA's licensed activities are nowhere close to being in the same class as the licensees listed in Category 1.A.(1). GA's * * * licensed processes are simple small batch-wise operations, there are no processes involving solutions or powders (the fuel is a uranium-zirconium metal alloy), * * *

The NRC believes that consideration of GA's comment as a request for an exemption under 10 CFR 171.11(d) is appropriate and supported by *Allied-Signal v. NRC*. The Court there indicated that they saw no reason to require the Commission to address rare situations in the rule itself, especially since 10 CFR Part 171 provides for exemptions in unusual circumstances. Therefore, the NRC intends to treat the unusual circumstances discussed in GA's comments as an exemption request, which it will address in the near future. The Commission notes, however, that the exemption determination will not be based on factors associated with size, ability to pay, or other economic factors. As stated in the decision to reinstate the exemption from annual fees for non-profit educational institutions, ability to pay is not a basis for an exemption (59 FR 12539). The NRC also addressed these issues in the Regulatory Flexibility Analysis in Appendix A to the final rule published July 10, 1991 (56 FR 31511). The Commission indicated these generally are not factors it will consider in setting fees and finds no basis for altering its approach at this time.

Given the questions raised by B&W, GA, and other fuel facilities regarding exemptions from fees and proper fee category classification, the NRC plans to reexamine the fuel facility subclass categorizations. Any restructuring that results from this reexamination will be included in the proposed FY 1995 fee rule for notice and comment.

The NRC adopts General Atomics' suggestion that the NRC consider a waiver of the FY 1994 annual fees if, within the 30-day period after the NRC acts on their exemption request, it notifies the NRC in writing, in accordance with 10 CFR 70.38, that it wishes to relinquish the portion of their license permitting fabrication of fuel elements or to obtain a POL. In order to be considered for the waiver of the FY 1994 annual fee, General Atomics must

permanently cease fuel fabrication activities within the 30-day period after NRC acts on the exemption request.

With respect to the argument that reclassifying the license is inconsistent with the NRC's stated underlying basis of "charging a class of licensees for NRC costs attributable to that class of licensees", costs for providing an identifiable service related to a specific application, license or approval are recovered under the fee regulations in 10 CFR Part 170. For generic and other regulatory costs not recovered under 10 CFR 170, the NRC, in compliance with the requirements of OBRA-90, has allocated these costs to major classes of licensees. The law permits, and the NRC has established, a schedule of annual charges in 10 CFR Part 171 that assesses different annual charges to different licensees or classes of licensees. To the extent practicable, and where necessary for a more fair and equitable allocation of costs, a major class of licensees is divided into subclasses. Within a class or subclass of licensees, the costs are uniformly allocated to each licensee in the class or subclass based on the premise that there is no significant difference in the generic and other regulatory services provided to each licensee within a class or subclass. This approach and principle are used for all classes of licensees (57 FR 32693; July 23, 1992). The Commission has carefully reviewed the costs allocated to the LEU fuel fabrication subclass and concluded that the budgeted costs have been properly assigned to those licensees within the subclass.

b. *Comment.* Commenters also objected to the increases in annual fees for Category 1.A.(1) (low-enriched fuel facilities) and Category 1.A.(2), (other materials licenses authorizing critical quantities of special nuclear material). Commenters indicated that the base fee for low-enriched fuel facilities has increased from about \$700,000 in FY 1991 to \$1.4 million in FY 1994, while Category 1.A.(2) increased from about \$175,000 to \$304,000 (including surcharge). These increases, commenters claimed, place an undue hardship on the profitable operation of these facilities and are grossly out of proportion to any warranted increase in the effort expended by the NRC in regulating these classes of licensees. One commenter stated that the NRC's practice of retroactively revising annual fees causes major corporate budgeting problems, especially when large increases between the originally invoiced quarterly payments and actual annual fees are the result.

Response. The amount of the NRC's fees are based on the budget authority

for a class of licensees and do not consider impact on a company's profitability. The NRC budgeted costs for this class of licensees have increased because the NRC budgeted and the Congress appropriated greater resources to regulate the safety and safeguards of fuel facilities. Under the 100 percent recovery statute of OBRA-90, charging this class of licensees fees that fail to recover the full budgeted amount, would mean that other licensees must pay additional fees which provide no benefit to them. NRC promulgates its final rules as early as it can subject to certain time-sensitive constraints: the NRC must receive a Congressionally approved budget, calculate the numerous fees in question, issue a proposed rule for comment, evaluate the comments, and issue a final fee rule.

c. *Comment.* One commenter, Allied-Signal (A-S), believed that the costs allocated to the UF₆ conversion subclass should be divided equally between two licensees rather than one, even though the second licensee has a possession only license (POL). A-S argued that the NRC has not provided a rational basis for exempting that licensee from the annual fee. A-S noted the NRC's policy that it is the existence of a license, not operations, that determines allocation of costs for recovery through the annual fee. A-S believes that a licensee that has a license to operate but does not do so is no different from a licensee that has operated, stops doing so, and holds a POL. A-S believes that, in each case, the NRC's regulations are equally applicable and the licensee benefits from them. A-S pointed out that it is the only entity in the U.S. engaging in UF₆ conversion operations and although it has attempted to pass the cost of fees on to its customers, it has not been able to do so on a broad-scale basis. A-S claimed that the proposed fee would raise its costs by 6 cents per pound and that winning bids from Canadian and European UF₆ converters are decided by as little as 1 cent per pound of UF₆.

A-S also argued that the UF₆ conversion license should be removed from the fuel facility class of licensees and included in the uranium recovery class because the operations of the UF₆ converter are more similar to those of a uranium mill than to a fuel facility. Additionally, there is now only one UF₆ converter in the U.S. and a subcategory of one does not accurately reflect the relevant amount of NRC's resources devoted to the license and for that reason is inappropriate. Therefore, according to Allied-Signal, the annual fee is not fairly and equitably allocated as required by OBRA-90, and does not bear a reasonable relationship to the

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cost of providing regulatory services, also required by the statute. A-S, therefore, believes the resulting fee for UF₆ converters is disproportionately higher than that charged to licensees in the uranium recovery category and disproportionately close to what is assessed to operating reactors.

Response. The NRC has a long-standing policy of not assessing annual fees to those licensees who have indicated to the NRC that they wish to amend their license to permanently withdraw authority to operate and have been issued a possession only license (POL) (51 FR 33228; September 18, 1986). In FY 1991, the NRC reconsidered and reaffirmed its policy that licensees with POLs would not be subject to the annual fees when it initially established fees to recover 100 percent of its budget authority under OBRA-90 (56 FR 14873; April 12, 1991). Recently, the Commission revisited this issue as part of its fee policy review required by EPA-92, and affirmed its decision to continue the policy of not assessing annual fees to licensees when the license is amended to authorize possession only or decommissioning. This is consistent with the concept that those who benefit from a license that authorizes operation or use of material should pay annual fees. Therefore, consistent with agency policy included in the past fee rules, and the FY 1994 proposed fee rule, the NRC will not assess FY 1994 annual fees to Sequoyah Fuels Corporation, previously a UF₆ converter but now is not authorized to operate as a UF₆ converter.

However, the NRC recognizes that its fee rule including this policy could result in a disproportionate allocation of costs to a licensee in unusual situations. Exemptions for such unusual circumstances are provided for in 10 CFR 171.11(d) and are supported by *Allied-Signal v. NRC*. The NRC concludes that the issues raised by *Allied-Signal* regarding a disproportionate allocation of the budgeted costs to them, as a result of the elimination of Sequoyah Fuels from the fee base, falls within the confines of an unusual situation. Therefore, the NRC will consider *Allied-Signal's* comments regarding NRC's allocation of costs to them as an exemption request under 10 CFR 171.11(d). The Commission will issue a decision on this exemption request in the near future.

As indicated in the response in item 3(a), the NRC recognized that there will be adverse impacts on licensees as a result of implementing OBRA-90. The NRC has concluded after notice and comment rulemaking that it would not be appropriate to consider licensees'

ability to pass through costs in establishing its fee schedules, an approach now recommended by *Allied-Signal*. As stated in the decision to reinstate the exemption from annual fees for nonprofit educational institutions, ability to pay is not a basis for an exemption (59 FR 12539). No one sought judicial review of that decision.

The Commission disagrees with *Allied-Signal's* suggestion that it be placed in the uranium recovery fee category rather than that reserved for fuel facilities, where it is currently located. The NRC includes the regulatory costs for UF₆ conversion facilities in the fuel facility class of licensees. In developing the FY 1994 annual fees the NRC followed the established budget structure. This permitted the NRC to more readily identify and allocate generic and other regulatory costs to a class of licensees, and allowed the NRC to explain and to show the origin of these costs upon public examination of the record.

Although the UF₆ conversion facilities are included in the same class as fuel fabrication facilities for budgeting purposes, the annual fee is based on the NRC's costs attributable to the UF₆ conversion facility subclass of licensees. For example, generic safety and safeguards and other regulatory costs are included in the budgeted costs for the fuel facilities class of licensees. However, none of the safeguards costs are included in the annual fee for the UF₆ conversion facility subclass since none of these costs are attributable to this subclass. Thus, the costs included in the annual fee for the UF₆ subclass of licensees are those budgeted costs attributable to the subclass. These costs, and the resulting annual fee, would be the same independent of where they are included in the budget. Therefore, even if the UF₆ conversion facilities are more akin to uranium recovery facilities, the budgeted costs attributable to them result in a different annual fee.

The NRC further notes that the NRC's costs of promulgating regulations for a type of licensee do not necessarily decrease when the number of licenses in a class goes down. Whether a class of licensees is comprised of one licensee or one hundred, generic safety concerns may well remain the same, and the same research and regulations are necessary. This is what distinguishes the annual fee from the 10 CFR Part 170 fees, which are charged to recapture costs for specific services such as inspections and license amendments. By its very nature the annual fee is levied to recover the costs of providing services, such as the development of new

regulations, that cannot be attributed to a specific licensee.

The NRC does recognize the strain this policy unavoidably places on licensees who become, as *Allied-Signal* has, the single licensee in their class or subclass. The NRC will be reviewing this problem along with others associated with classification of fuel facilities. Any changes resulting from this review will be included in the FY 1995 proposed rule for notice and public comment.

4. Fees for Independent Spent Fuel Storage Installations

Comment. One commenter, while noting that the willingness and ability of the NRC to hold the line on, and indeed reduce, the recoverable budget for FY 1994 is commendable, questioned the increase in fees from \$136,200 to \$383,500 for Independent Spent Fuel Storage Installations. As a minimum, the commenter believes NRC should identify the additional resources to be expended in this area.

Response. The reasons for the increased fees for independent spent fuel storage licensees are two-fold. First, the budgeted amount necessary to regulate spent fuel activities which is recovered through 10 CFR Part 170 and 171 fees increased to provide regulatory oversight for the increased number of facilities and to accomplish necessary rulemaking activities for spent fuel facilities. Additionally, as the licensing of these facilities are completed, the amount of fees from 10 CFR Part 170 decreased resulting in an increased amount of the budget that must be recovered from 10 CFR Part 171.

5. Proration of Annual Fees

Comment. Several commenters concurred with the proposed proration provisions and permitting a waiver of annual fees for those who either filed for termination of their license prior to October 1, 1993, or permanently ceased licensed activities by September 30, 1993 but had not yet received necessary NRC approvals before the end of the fiscal year.

Response. The NRC has amended 10 CFR 171.17 to revise the proration provision for reactors and add a proration provision for materials licenses. The proration provisions are effective for FY 1994. The NRC proposed to prorate the annual fees for materials licenses upgraded or downgraded during the fiscal year. However, based on lack of sufficient data at this time on upgrades and downgrades of licenses and the administrative burden to implement this part of the proposed proration provision

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for FY 1994, the NRC will prorate the annual fees only for those licenses for which a termination request or a request for a POL has been filed during the fiscal year and for new licenses issued during the fiscal year. This issue will be revisited in a future rulemaking.

E. Other Issues

1. Impact of Fees on Licensees

Comment. Several commenters expressed concern about the impact of fees, particularly on the practice of nuclear medicine. Some commenters indicated that the increase in annual fees may indirectly limit access to critical radiological care, particularly for small, rural, medical practices. They suggest that the fees be reduced or that NRC freeze the annual license fee for a five-year period in order for them to stay in business.

Response. The NRC is concerned about the impact of its fees but has concluded that significant changes can only come about through the enactment of legislation. The Commission is satisfied that the fee schedule being promulgated for FY 1994 satisfies all statutory obligations. The Commission recently considered the effect of fees on the medical community and decided that it would not provide the significant fee relief requested by the medical commenters (59 FR 12555; March 17, 1994).

2. Deferral of Fees for Standardized Plants and Early Site Reviews

Comment. One commenter urged NRC to reestablish the NRC's previous fee deferral policy for review of standardized plant designs and early site reviews indicating that fee deferral for review of the standardized designs is essential to encourage the development of such designs.

Response. The Commission decided in the FY 1991 final fee rule that the costs for standardized reactor design reviews, whether for domestic or foreign applicants, should be assessed under 10 CFR Part 170 to those filing an application with the NRC for approval or certification of a standardized design (56 FR 31478; July 10, 1991). Recently, the Commission revisited this issue as part of its review of fee policy required by the EPA-92 and reconfirmed its FY 1991 decision. The NRC continues to believe the costs of these reviews should be assessed to advanced reactor applicants. The NRC finds no compelling justification for singling out these classes of applications for special treatment and shifting additional costs to operating power reactors or other NRC licensees.

3. Revise 10 CFR 171.13 Notice

Comment. One commenter pointed out that 10 CFR 171.13 states that the NRC will publish a notice concerning the annual fee in the Federal Register during the first quarter of each fiscal year and that for the past four years the NRC has not met the requirement stated in the regulation. The commenter suggests that the NRC publish the proposed annual fee and professional hourly rate as early as possible within NRC's fiscal year to facilitate licensees' budget and planning processes.

Response. The NRC agrees with the commenter and acknowledges the realities of the situation that the proposed rule has been published during the third quarter of each of the past four fiscal years. The intent of the NRC is to publish the proposed rule as quickly as is practicable but realizes and agrees that it is unlikely that publication will occur during the first quarter of the fiscal year. To permit appropriate notice and comments, however, 10 CFR 171.13 will not be revised in this final rule but will be revised in a future rulemaking.

III. Final Action—Changes Included in the Final Rule

The NRC is amending its licensing, inspection, and annual fees for FY 1994. OBRA-90 requires that the NRC recover approximately 100 percent of its FY 1994 budget authority, including the budget authority for its Office of the Inspector General, less the appropriations received from the NWF, by assessing licensing, inspection, and annual fees.

For FY 1994, the NRC's budget authority was originally \$547.7 million. The Commission, in its effort to streamline operations, proposed a \$12.7 million rescission to its original appropriation for FY 1994. Congress approved this NRC-proposed reduction. This resulted in a revised budget authority of \$535.0 million. Approximately \$22.0 million of the revised budget was appropriated from the NWF. Therefore, OBRA-90 requires that the NRC collect approximately \$513.0 million in FY 1994 through 10 CFR part 170 licensing and inspection fees and 10 CFR part 171 annual fees. This amount to be recovered for FY 1994 is about \$6 million less than the total amount to be recovered for FY 1993. The NRC estimates that approximately \$120.1 million will be recovered in FY 1994 from the fees assessed under 10 CFR part 170. The remaining \$392.9 million will be recovered through the 10 CFR part 171 annual fees established for FY 1994.

The NRC has not changed the basic approach, policies, or methodology for calculating the 10 CFR part 170 professional hourly rate, the specific materials licensing and inspection fees in 10 CFR part 170, and the 10 CFR part 171 annual fees set forth in the final rules published July 10, 1991 (56 FR 31472), July 23, 1992 (57 FR 32691), and July 20, 1993 (58 FR 38666), with the following exceptions: (1) The Commission has reinstated the annual fee exemption for nonprofit educational institutions and (2) in this final rule, the NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. Resources for these activities had previously been included in overhead but are now assigned directly to the class of licenses that they support. As a result of this direct assignment, the cost per direct FTE is about 3 percent less than it would have been without the additional direct assignment.

Under this final rule, fees for most materials and fuel cycle licensees will increase because—

(1) The NRC professional rate has increased slightly from \$132/hr to \$133/hr;

(2) The NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. Resources for these activities had previously been included in overhead, but are now assigned directly to the class of licensees that they support;

(3) The number of licenses in some classes has decreased as compared to FY 1993 due to license termination or consolidation, resulting in fewer licensees to pay for the costs of regulatory activities not recovered under 10 CFR Part 170; and

(4) The budget for some classes of licensees has increased.

The NRC contemplates that any fees to be collected as a result of this final rule will be assessed on an expedited basis to ensure collection of the required fees by September 30, 1994, as stipulated in OBRA-90. Therefore, as in FY 1991, FY 1992, and FY 1993, the fees will become effective 30 days after publication of the final rule. The NRC will send a bill for the amount of the annual fee to the licensee or certificate, registration, or approval holder upon publication of the final rule. Payment is

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due on the effective date of the FY 1994 rule.

A. Amendments to 10 CFR Part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

Five amendments have been made to Part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. The revisions also comply with the guidance in the Conference Committee Report on OBRA-90 that fees assessed under the Independent Offices Appropriation Act (IOAA) recover the full cost to the NRC of all identifiable regulatory services each applicant or licensee receives.

First, the agency-wide professional hourly rate, which is used to determine the Part 170 fees, is increased from \$132 per hour to \$133 per hour (\$231,216 per direct FTE). The rate is based on the FY 1994 direct FTEs and that portion of the FY 1994 budget that does not constitute direct program support (contractual services costs) and is not recovered through the appropriation from the NWF. As indicated earlier, the decrease in the FY 1994 budget as compared to the FY 1993 budget is primarily for direct program support, which is not included in the hourly rate. Thus, the reduction in the budget has limited impact on the hourly rate but will show up as a direct reduction to the amount allocated to the various classes of licensees.

Second, the current Part 170 licensing and inspection fees in §§ 170.21 and 170.31 for all applicants and licensees are revised to reflect the very small increase in the hourly rate.

Third, the definition of special projects as provided in § 170.3 of the regulations is revised as a result of (1) the NRC's experience in implementing the 100 percent fee recovery program during the past three years and (2) the NRC's most recent fee policy review, required by the Energy Policy Act of 1992. The NRC believes that the costs for some requests or reports being filed with NRC are more appropriately captured in the 10 CFR Part 171 annual fees rather than assessing specific fees under 10 CFR Part 170. These reports, although submitted by a specific organization, support NRC's development of generic guidance and regulations (e.g., rules, regulatory guides, and policy statements), and resolution of safety issues applicable to a class of licensees, such as those addressed in generic letters. Therefore, the applicable definition in § 170.3 and

the footnotes in §§ 170.21 and 170.31 are revised to indicate that 10 CFR Part 170 fees will not be assessed for requests/reports which have been submitted to the NRC:

(1) In response to a Generic Letter or NRC Bulletin that does not result in an amendment to the license, does not result in the review of an alternate method or reanalysis to meet the requirements of the Generic Letter or does not involve an unreviewed safety issue;

(2) In response to an NRC request (at the Associate Office Director level or above) to resolve an identified safety, safeguards, or environmental issue, or to assist the NRC in developing a rule, regulatory guide, policy statement, generic letter, or bulletin; or

(3) As a means of exchanging information between industry organizations and the NRC for the purpose of supporting generic regulatory improvements or efforts.

The terms "alternate method", "reanalysis" and "unreviewed safety issue" are explained in more detail in Section IV, Section-By-Section Analysis.

Fourth, § 170.11(a) is amended to establish an exemption from fees for State-owned research reactors if they meet the technical design criteria for the exemption and are research reactors used primarily for educational training and academic research purposes.

Fifth, Fee Category 2 is amended by establishing two additional fee categories, 2.A.(2) and 2.A.(3), which cover licenses authorizing receipt and disposal of Section 11e.(2) byproduct material as defined by the Atomic Energy Act. The current 2.A. category has been amended to read 2.A.(1). The current 4.D. fee category has been eliminated. This action recognizes that: (1) Source material licenses are issued to cover these licensed activities and therefore they are more appropriately placed in the source material category; and (2) that a further distinction should be made between those licenses whose primary purpose is to authorize receipt and disposal of 11e.(2) material requiring the establishment of a new tailings pile and those licenses authorizing the receipt and disposal of 11e.(2) material incidental to tailings piles created by mill operations.

In addition, Category 16 of § 170.31, reciprocity, is amended to include a fee to recover the NRC's costs of reviewing revisions to the initial NRC Form 241 filed by 10 CFR 150.20 general licensees. Agreement State licensees requesting reciprocity for activities conducted in non-Agreement States or in offshore waters are subject to 10 CFR 150.20. The first time within a calendar

year that an Agreement State licensee conducts activities in non-Agreement States or in offshore waters, it must file a completed NRC Form 241. Revisions to the initial NRC Form 241 are filed for review and authorization when persons using the 10 CFR Part 150.20 general license either add locations of work, use different radioactive material or perform additional work activities in a non-Agreement State.

B. Amendments to 10 CFR Part 171: Annual Fees for Reactor Operating Licenses, and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by NRC

Six amendments have been made to 10 CFR Part 171. First, § 171.11(a)(2) is amended to provide that State-owned research reactors used primarily for educational training and academic research purposes will be exempt from the annual fee. The NRC believes that this change is consistent with the legislative intent of the Energy Policy Act of 1992 that government-owned research reactors be exempt from annual fees if they meet the technical design criteria for the exemption and are used primarily for educational training and academic research purposes.

Second, §§ 171.15 and 171.16 are amended to revise the annual fees for FY 1994 to recover approximately 100 percent of the FY 1994 budget authority, less fees collected under 10 CFR Part 170 and funds appropriated from the NWF.

Third, fee Category 2 of § 171.16(d) is amended by establishing two new fee categories, 2.A.(3) and 2.A.(4), relating to the disposal of 11e.(2) byproduct material as defined by the Atomic Energy Act. The current fee Category 4.D. has been eliminated. This action recognizes that (1) part of the budgeted costs for the uranium recovery class of licensees should be allocated to source material licenses that authorize receipt and disposal of 11e.(2) material because some of these budgeted resources are used to regulate these licensees and (2) a further distinction should be made between those licenses whose primary purpose is to authorize receipt and disposal of 11e.(2) byproduct material requiring the establishment of a new mill tailings pile and those non-operating mills that accept 11e.(2) byproduct material for disposal incidental to tailings piles created by mill operations.

In addition, fee Category 18 of § 171.16(d) is amended to assess fees to the Department of Energy (DOE) for its

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general license in 10 CFR 40.27. The general license fulfills a requirement of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (Public Law 95-604) that the perpetual custodian of reclaimed uranium mill tailings piles be licensed by the NRC. The general license provided for in the regulation covers only post-reclamation closure custody and site surveillance. Based on NRC's acceptance of DOE's Long Term Surveillance Plan for the Spook, Wyoming, site on September 21, 1993, the site is now subject to the general license in 10 CFR 40.27. Because DOE now holds an NRC license, it is subject to annual fees. The NRC had previously indicated its intent to bill DOE for UMTRCA costs once post-closure was achieved and the sites were licensed by the Government (56 FR 31481; July 10, 1991). As a result, DOE will be billed for the costs associated with NRC's UMTRCA review of all activities associated with the facilities assigned to DOE under UMTRCA. As with other licensees, the annual fee for this class of licensees (DOE UMTRCA facilities) will recover the generic and other regulatory costs not recovered through 10 CFR Part 170 fees. Because DOE, as a Federal agency, cannot be assessed Part 170 fees under the Independent Offices Appropriation Act of 1952 (IOAA), the result is that NRC will assess annual fees to DOE for the total costs of DOE UMTRCA activities.

Fourth, 10 CFR 171.17 is amended to add a proration provision for materials licenses and to revise the proration provision for reactors. The annual fee for materials licensees is prorated based on applications filed after October 1 of the fiscal year to terminate a license or obtain a POL. Those materials licensees who file applications between October 1 and March 31 of the fiscal year to terminate the license or obtain a POL will be assessed one-half the annual fee stated in § 171.16(d) for the affected fee category(ies). Those materials licensees filing applications on or after April 1 of the fiscal year to terminate a license or obtain a POL will be assessed the full annual fee for that fiscal year. Those licensees who file for termination or POL must also permanently cease operations of relevant licensed activities during the periods mentioned for the fees to be reduced. Similarly, materials licensees who were issued new licenses during the fiscal year will be charged a prorated annual fee based on the date of issuance of the new license. New materials licenses issued during the period October 1 through March 31 will be assessed one-half of the annual fee stated in § 171.16(d) for the applicable

fee category(ies) for that fiscal year. New licenses issued on or after April 1 will not be assessed an annual fee for that fiscal year.

The proration provision in § 171.17 applicable to reactors is amended to provide that, for licensees who have requested an amendment to withdraw operating authority permanently during the FY, the annual fee will be prorated based on the number of days during the FY the operating license was in effect before either the possession only license was issued or the license was terminated.

Fifth, Footnote 1 of 10 CFR 171.16(d) is amended to provide for a waiver of the FY 1994 annual fees for those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage licenses prior to October 1, 1993, and permanently ceased licensed activities entirely by September 30, 1993. All other licensees and approval holders who held a license or approval on October 1, 1993, are subject to FY 1994 annual fees. This change is in recognition of the fact that since the final FY 1993 rule was published in July 1993, licensees have continued to file requests for termination of their licenses or certificates with the NRC. Other licensees have either called or written to the NRC since the FY 1993 final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible. However, the NRC was unable to respond and take action on all of the requests before the end of the fiscal year on September 30, 1993. Similar situations existed after the FY 1991 and FY 1992 rules were published, and in those cases NRC provided an exemption from the requirement that the annual fee is waived only where a license is terminated before October 1 of each fiscal year.

Sixth, § 171.19 is amended to credit the quarterly partial payments already made by certain licensees in FY 1994 either toward their total annual fee to be assessed or to make refunds, if necessary.

The 10 CFR part 171 annual fees have been determined using the same method used to determine the FY 1991, FY 1992, and FY 1993 annual fees. The amounts to be collected through annual fees in the amendments to 10 CFR part 171 are based on the increased professional hourly rate. The amendments to 10 CFR part 171 do not change the underlying basis for 10 CFR part 171; that is, charging a class of

licensees for NRC costs attributable to that class of licensees. The changes are consistent with the Congressional guidance in the Conference Committee Report on OBRA-90, which states that the "conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensee to such class" and the "conferees intend that the NRC assess the annual charge under the principle that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual fee" (136 Cong. Rec., at H12692-93).

During the past three years, many licensees have indicated that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In responding to licensees about this matter, the NRC has stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes once again that annual fees will be assessed based on whether a licensee holds a valid license with the NRC that authorizes possession and use of radioactive material. To remove any uncertainties regarding agency policy on this issue, the NRC amended 10 CFR 171.16, footnotes 1 and 7 on July 20, 1993 (58 FR 38666).

C. FY 1994 Budgeted Costs

The FY 1994 budgeted costs, by major activity, that will be recovered through 10 CFR parts 170 and 171 fees are shown in Table I.

TABLE I.—RECOVERY OF NRC'S FY 1994 BUDGET AUTHORITY
(Dollars in millions)

Recovery method	Estimated amount
Nuclear Waste Fund	\$22.0
Part 170 (license and inspection fees)	120.1
Other receipts .....	.1
Part 171 (annual fees):	
Power Reactors	302.1
Nonpower Reactors .....	.4
Fuel Facilities	16.8
Spent Fuel Storage	2.2
Uranium Recovery	2.1
Transportation	4.0

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TABLE I.— RECOVERY OF NRC'S FY 1994 BUDGET AUTHORITY—Continued
(Dollars in millions)

Recovery method	Estimated amount
Material Users	138.6
Subtotal Part 171	366.2
Costs remaining to be recovered not identified above	26.6
Total	535.0

¹ Includes \$6.3 million that will not be recovered from small materials licensees because of the reduced small entity fees.

The \$26.6 million identified for those activities which are not identified as either 10 CFR parts 170 or 171 or the NWF in Table I are distributed among the classes of licensees as follows:

\$24.4 million to operating power reactors;
\$7 million to fuel facilities; and
\$1.5 million to other materials licensees.

In addition, approximately \$6.3 million must be collected as a result of continuing the \$1,800 maximum fee for small entities and the lower tier small entity fee of \$400 for certain licensees. In order for the NRC to recover 100 percent of its FY 1994 budget authority in accordance with OBRA-90, the NRC will recover \$5.3 million of the \$6.3 million from operating power reactors and the remaining \$1.0 million from other nonreactor entities that do not meet NRC small entity size standards.

This distribution results in an additional charge (surcharge) of approximately \$273,000 per operating power reactor; \$55,770 for each HEU, LEU, UF₆, and each other fuel facility license; \$1,670 for each materials license in a category that generates a significant amount of low level waste; and \$170 for other materials licenses. When added to the base annual fee of approximately \$2.8 million per reactor, this will result in an annual fee of approximately \$3.1 million per operating power reactor. The total fuel facility annual fee will be between approximately \$1.2 million and \$3.2 million. The total annual fee for materials licenses will vary depending on the fee category(ies) assigned to the license.

The additional charges not directly or solely attributable to a specific class of NRC licensees and costs not recovered from all NRC licensees on the basis of previous Commission policy decisions will be recovered from the designated classes of licensees previously identified. A further discussion and breakdown of the specific costs by major

classes of licensees are shown in section IV of this final rule.

IV. Section-by-Section Analysis

The following analysis of those sections that are affected under this final rule provides additional explanatory information. All references are to title 10, chapter I, Code of Federal Regulations.

Part 170

Section 170.3 Definitions

This section is amended to revise the definition of special projects. This change is based on NRC's experience during the past three years in implementing the 100 percent fee recovery program and the fee policy review required by the Energy Policy Act of 1992. The NRC believes that the costs for some requests or reports being filed with NRC are more appropriately captured in the 10 CFR part 171 annual fees instead of assessing specific fees under 10 CFR part 170. Therefore, the definition in § 170.3, as well as the footnotes in §§ 170.21 and 170.31, are amended to indicate that 10 CFR part 170 fees will not be assessed for requests/reports which have been submitted to the NRC:

1. In response to a Generic Letter or NRC Bulletin that does not result in an amendment to the license, does not result in the review of an alternate method or reanalysis to meet the requirements of the Generic Letter, or does not involve an unreviewed safety issue;

2. In response to an NRC request (at the Associate Office Director level or above) to resolve an identified safety, safeguards, or environmental issue, or to assist the NRC in developing a rule, regulatory guide, policy statement, generic letter, or bulletin; or

3. As a means of exchanging information between industry organizations and the NRC for the purpose of supporting generic regulatory improvements or efforts.

The terms "alternate method", "reanalysis", and "unreviewed safety issue" as used in item 1 are further explained as follows:

"Alternate method" is a method that deviates significantly (i.e., more than necessary for plant-specific or generic program development) from the method proposed in the Generic Letter or NRC Bulletin;

"Reanalysis" is an analysis of an alternate method but not a review of changes to a method which is consistent with that proposed by the Generic Letter or Bulletin. These types of "consistent" changes could be revisions submitted

pursuant to an NRC staff request for additional information or modification, or changes necessary for plant-specific or generic implementation; and

"Unreviewed safety issue" is a safety issue unrelated to the safety issue identified in the generic communication that arises from proposal of an alternate method and will require reanalysis by the NRC staff.

Section 170.11 Exemptions

Paragraph (a)(9) of this section is established to provide an exemption from fees for State-owned research reactors that meet certain technical design criteria and are used primarily for educational training and academic research purposes. Currently, Federal agencies are exempt from payment of 10 CFR part 170 fees under the Independent Offices Appropriation Act (IOAA). The proposed rule would have amended only 10 CFR part 171. The NRC believes however, that this change to 10 CFR part 170 is consistent with the legislative intent of the Energy Policy Act of 1992 that government-owned research reactors be exempt from fees if they meet the technical design criteria for the exemption and are used primarily for educational training and academic research purposes. There is currently one research reactor, owned by the Rhode Island Atomic Energy Commission, that will be exempt under this amendment to § 170.11.

Section 170.20 Average Cost Per Professional Staff Hour

This section is amended to reflect an agency-wide, professional staff-hour rate based on FY 1994 budgeted costs. Accordingly, the NRC professional staff-hour rate for FY 1994 for all fee categories that are based on full cost is \$133 per hour, or \$231,216 per direct FTE. The rate is based on the FY 1994 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF. The rate is calculated using the identical method established for FY 1991, FY 1992, and FY 1993. As noted earlier, in this final rule, the NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards and the Advisory Committee on Nuclear Waste. The method is as follows:

1. All direct FTEs are identified in Table II by major program. For FY 1994 the NRC has traced additional direct effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee

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on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. The budgeted costs for these activities had previously been included in overhead but are now being directly assigned to the class of licensees that they support.

TABLE II.—ALLOCATION OF DIRECT FTEs BY MAJOR PROGRAM

Major program	No. of direct FTEs ¹
Reactor Safety and Safeguards Regulation	1,034.4
Reactor Safety Research	111.3
Nuclear Material and Low Level Waste Safety and Safeguards Regulation	352.5
Reactor Special and Independent Reviews, Investigations, and Enforcement	111.7
Nuclear Material Management and Support	19.0
Total direct FTE	2,162.9

¹ FTE (full-time equivalent) is one person working for a full year. Regional employees are counted in the office of the program each supports.

² In FY 1994, 1,628.9 FTEs of the total 3,223 FTEs are considered to be in direct support of NRC non-NWF programs. The remaining 1,594.1 FTEs are considered overhead and general and administrative.

2. NRC FY 1994 budgeted costs are allocated, in Table III, to the following four major categories:

- (a) Salaries and benefits.
- (b) Administrative support.
- (c) Travel.
- (d) Program support.

3. Direct program support, which is the use of contract or other services in support of the line organization's direct program, is excluded because these costs are charged directly through the various categories of fees.

4. All other costs (i.e., Salaries and Benefits, Travel, Administrative Support, and Program Support contracts/services for G&A activities) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Using this method, which was described in the final rules published July 10, 1991 (56 FR 31472), July 23, 1992 (57 FR 32691), and July 20, 1993 (58 FR 38666), and excluding direct Program Support funds, allocating the remaining \$376.6 million uniformly to the direct FTEs (1,628.9) results in a rate of \$231,216 per FTE for FY 1994. The Direct FTE Hourly Rate is \$133 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing \$376.6 million by the number of direct FTEs (1,628.9 FTE) and the number of productive hours in one year (1744 hours) as indicated in OMB Circular A-

76, "Performance of Commercial Activities."

TABLE III.—FY 1994 BUDGET AUTHORITY BY MAJOR CATEGORY
(Dollars in millions)

Salaries and benefits	\$259.5
Administrative support	86.7
Travel	15.9
Total nonprogram support obligations	362.1
Program support	150.9
Total Budget Authority	513.0
Less direct program support and offsetting receipts	136.4
Budget Allocated to Direct FTE	376.6
Professional Hourly Rate	133

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections and Import and Export Licenses.

The licensing and inspection fees in this section, which are based on full-cost recovery, are revised to reflect the FY 1994 budgeted costs and to recover costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate as shown in § 170.20 and any direct program support (contractual services) costs expended by the NRC. Any professional hours expended on or after the effective date of this rule will be assessed at the FY 1994 rate shown in § 170.20. Although the amounts of the import and export licensing fees in § 170.21, facility Category K, have not changed from FY 1993 as a result of the very small increase in the hourly rate from \$132 per hour to \$133 per hour, they are being published for purposes of convenience.

For those applications currently on file and pending completion, footnote 2 of § 170.21 is revised to provide that the professional hours expended up to the effective date of this rule will be assessed at the professional rates established for the rules that became effective on June 20, 1984, January 30, 1989, July 2, 1990, August 9, 1991, August 24, 1992, and August 19, 1993, as appropriate. For topical report applications currently on file which are still pending completion of the review and for which review costs have reached the applicable fee ceiling established by the July 2, 1990, rule, the costs incurred after any applicable ceiling was reached through August 8,

1991, will not be billed to the applicant. Any professional hours expended for the review of topical report applications, amendments, revisions, or supplements to a topical report on or after August 9, 1991, are assessed at the applicable rate established by § 170.20.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, Including Inspections and Import and Export Licenses.

The licensing and inspection fees in this section are modified to recover the FY 1994 costs incurred by the Commission in providing licensing and inspection services to identifiable recipients. Those flat fees, which are based on the average time to review an application or conduct an inspection, are adjusted to reflect the very small increase in the professional hourly rate from \$132 per hour in FY 1993 to \$133 per hour in FY 1994. In many cases, the fees for FY 1994 are the same as those assessed in FY 1993.

The amounts of the licensing and inspection flat fees were rounded by applying standard rules of arithmetic so that the amounts rounded would be de minimus and convenient to the user. Fees that are greater than \$1,000 are rounded to the nearest \$100. Fees under \$1,000 are rounded to the nearest \$10.

The revised flat fees are applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D, 10.B, 15.A through 15.E and 16. The revised fees will be assessed for applications filed or inspections conducted on or after the effective date of this rule.

Fee Category 2 is amended by establishing two additional fee categories 2.A.(2) and 2.A.(3) which cover licenses authorizing receipt and disposal of Section 11e.(2) byproduct material as defined by the Atomic Energy Act. The current 2.A. category has been amended to read 2.A.(1). The current 4.D. fee category has been eliminated. This action recognizes that (1) source material licenses are issued to cover these licensed activities and they are more appropriately placed in the source material category and (2) that a further distinction should be made between those licenses whose primary purpose is to authorize receipt and disposal of 11e.(2) material requiring the establishment of a new tailings pile from those licenses authorizing the receipt and disposal of 11e.(2) material incidental to tailings piles created by mill operations.

Fee Category 16, reciprocity, is also amended to include a fee to recover the costs incurred by the NRC for the review of revisions to the information submitted on the initial NRC Form-241 filed by 10 CFR 150.20 general licensees

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during the remainder of the calendar year. Agreement State licensees requesting reciprocity for activities conducted in non-Agreement States or in offshore waters are subject to 10 CFR 150.20. The first time within a calendar year that an Agreement State licensee conducts activities in non-Agreement States or in offshore waters, it must file a completed NRC Form 241. Revisions to the initial NRC Form 241 are filed for review and authorization when persons using the 10 CFR Part 150.20 general license either add locations of work, use different radioactive material or perform additional work activities in a non-Agreement State.

For those licensing, inspection, and review fees assessed that are based on full-cost recovery (cost for professional staff hours plus any contractual

services), the revised hourly rate of \$133, as shown in § 170.20, applies to those professional staff hours expended on or after the effective date of this rule.

Part 171

Section 171.11 Exemptions

Paragraph (a)(2) of this section is amended to exempt State-owned reactors used primarily for educational training and academic research purposes from annual fees. The NRC believes that this change is consistent with the legislative intent of the Energy Policy Act of 1992 that government-owned research reactors be exempt from annual fees if they meet the technical design criteria of the exemption and are used primarily for educational training and academic research purposes. There is currently one research reactor, owned

by the Rhode Island Atomic Energy Commission, that will be exempt under this amendment to § 171.11.

Section 171.15 Annual Fee: Reactor Operating Licenses

The annual fees in this section are revised to reflect FY 1994 budgeted costs. Paragraphs (a), (b)(3), (c)(2), (d), and (e) are revised to comply with the requirement of OBRA-90 to recover approximately 100 percent of the NRC budget for FY 1994. Table IV shows the budgeted costs that have been allocated directly to operating power reactors as part of the base fee. They have been expressed in terms of the NRC's FY 1994 programs and program elements. The resulting total base annual fee amount for power reactors is also shown.

TABLE IV.—ALLOCATION OF NRC FY 1994 BUDGET TO POWER REACTORS' BASE FEES¹

	Program element total		Allocated to power reactors	
	Program support (\$, K)	Direct FTE	Program support (\$, K)	Direct FTE
Reactor Safety and Safeguards Regulation (RSSR)				
Standard Reactor Designs	\$9,531	96.3	\$9,361	92.8
Reactor License Renewal	600	33.9	600	33.9
Reactor and Site Licensing	1,810	34.7	1,810	29.8
Resident Inspections		207.0		207.0
Region-Based Inspections	2,780	235.0	2,780	229.8
Interns (HQ and Regions)		23.0		23.0
Special Inspections	970	42.7	970	42.7
License Maintenance and Safety Evaluations	4,142	208.5	4,142	208.5
Plant Performance	927	52.1	927	52.1
Human Performance	4,760	54.7	4,403	51.1
Other Safety Reviews and Assistance	3,443	46.5	3,213	38.8
RSSR program total			\$28,206	1,009.5
Reactor Safety Research (RSR)				
Standard Reactor Designs	\$16,676	29.3	\$16,676	29.3
Reactor Aging & License Renewal	23,273	13.7	22,573	13.6
Plant Performance	3,173	4.2	3,173	4.2
Human Reliability	4,428	7.0	4,428	7.0
Reactor Accident Analysis	20,284	26.7	20,284	26.7
Safety Issue Resolution and Regulatory Improvements	10,240	30.4	10,240	30.4
RSR program total			\$77,374	111.2
Nuclear Material & Low Level (NMLL)				
NMLL (NMSS):				
Fuel Cycle Safety and Safeguards	\$4,783	85.8	\$1,494	2.8
LLW Licensing and Inspection	592	14.3		1.4
Uranium Recovery Licensing and Inspection	265	14.4	21	0
Decommissioning	2,215	30.8	9	6.7
NMLL (RES):				
Environmental Policy and Decommissioning	2,410	9.0	964	3.6
NMLL program total			\$2,488	14.5
Reactor Special and Independent Reviews, Investigations, and Enforcement				
AEOD:				
Diagnostic Evaluations	288	5.0	288	5.0
Incident Investigations	26	1.0	26	1.0
NRC Incident Response	1,854	26.0	1,854	24.0
Operational Experience Evaluation	5,447	30.0	5,447	29.0

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TABLE IV.—ALLOCATION OF NRC FY 1994 BUDGET TO POWER REACTORS' BASE FEES¹—Continued

	Program element total		Allocated to power reactors	
	Program support (\$, K)	Direct FTE	Program support (\$, K)	Direct FTE
Committee to Review Generic Requirements		2.0		2.0
AEOD Subtotal			\$7,615	61.0
Advisory Committee on Reactor Safeguards	181	20.5	181	20.5
Office of Investigations		17.0		17.0
Office of Enforcement	10	7.2	10	7.0
RSIRIE program total			\$7,806	105.5
Total base fee amount allocated to power reactors				\$402.7 (million ²)
Less estimated part 170 power reactor fees (million)				\$100.6
Part 171 base fees for operating power reactors				\$302.1 (million)

¹ Base annual fees include all costs attributable to the operating power reactor class of licensees. The base fees do not include costs allocated to power reactors for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

Based on the information in Table IV, shown in Table V below for each the base annual fees that will be nuclear power operating license. assessed for FY 1994 are the amounts

TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS

Reactors	Containment type	Annual fee
Westinghouse:		
1. Beaver Valley 1	PWR Large Dry Containment	\$2,805,000
2. Beaver Valley 2	do	2,805,000
3. Braidwood 1	do	2,805,000
4. Braidwood 2	do	2,805,000
5. Byron 1	do	2,805,000
6. Byron 2	do	2,805,000
7. Callaway 1	do	2,805,000
8. Comanche Peak 1	do	2,805,000
9. Comanche Peak 2	do	2,805,000
10. Diablo Canyon 1	do	2,803,000
11. Diablo Canyon 2	do	2,803,000
12. Farley 1	do	2,805,000
13. Farley 2	do	2,805,000
14. Ginna	do	2,805,000
15. Haddam Neck	do	2,805,000
16. Harris 1	do	2,805,000
17. Indian Point 2	do	2,805,000
18. Indian Point 3	do	2,805,000
19. Kewaunee	do	2,805,000
20. Millstone 3	do	2,805,000
21. North Anna 1	do	2,805,000
22. North Anna 2	do	2,805,000
23. Point Beach 1	do	2,805,000
24. Point Beach 2	do	2,805,000
25. Prairie Island 1	do	2,805,000
26. Prairie Island 2	do	2,805,000
27. Robinson 2	do	2,805,000
28. Salem 1	do	2,805,000
29. Salem 2	do	2,805,000
30. Seabrook 1	do	2,805,000
31. South Texas 1	do	2,805,000
32. South Texas 2	do	2,805,000
33. Summer 1	do	2,805,000
34. Surry 1	do	2,805,000
35. Surry 2	do	2,805,000
36. Turkey Point 3	do	2,805,000
37. Turkey Point 4	do	2,805,000
38. Vogtle 1	do	2,805,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
39. Vogtle 2	do	2,805,000
40. Wolf Creek 1	do	2,805,000
41. Zion 1	do	2,805,000
42. Zion 2	do	2,805,000
43. Catawba 1	PWR—Ice Condenser	2,804,000
44. Catawba 2	do	2,804,000
45. Cook 1	do	2,804,000
46. Cook 2	do	2,804,000
47. McGuire 1	do	2,804,000
48. McGuire 2	do	2,804,000
49. Sequoyah 1	do	2,804,000
50. Sequoyah 2	do	2,804,000
Combustion Engineering:		
1. Arkansas 2	PWR Large Dry Containment	2,804,000
2. Calvert Cliffs 1	do	2,804,000
3. Calvert Cliffs 2	do	2,804,000
4. Ft. Calhoun 1	do	2,804,000
5. Maine Yankee	do	2,804,000
6. Millstone 2	do	2,804,000
7. Palisades	do	2,804,000
8. Palo Verde 1	do	2,801,000
9. Palo Verde 2	do	2,801,000
10. Palo Verde 3	do	2,801,000
11. San Onofre 2	do	2,801,000
12. San Onofre 3	do	2,801,000
13. St. Lucie 1	do	2,804,000
14. St. Lucie 2	do	2,804,000
15. Waterford 3	do	2,804,000
Babcock & Wilcox:		
1. Arkansas 1	do	2,804,000
2. Crystal River 3	do	2,804,000
3. Davis Besse 1	do	2,804,000
4. Oconee 1	do	2,804,000
5. Oconee 2	do	2,804,000
6. Oconee 3	do	2,804,000
7. Three Mile Island 1	do	2,804,000
General Electric:		
1. Browns Ferry 1	Mark I	2,785,000
2. Browns Ferry 2	do	2,785,000
3. Browns Ferry 3	do	2,785,000
4. Brunswick 1	do	2,785,000
5. Brunswick 2	do	2,785,000
6. Clinton 1	Mark III	2,785,000
7. Cooper	Mark I	2,785,000
8. Dresden 2	do	2,785,000
9. Dresden 3	do	2,785,000
10. Duane Arnold	do	2,785,000
11. Fermi 2	do	2,785,000
12. Fitzpatrick	do	2,785,000
13. Grand Gulf 1	Mark III	2,785,000
14. Hatch 1	Mark I	2,785,000
15. Hatch 2	do	2,785,000
16. Hope Creek 1	do	2,785,000
17. LaSalle 1	Mark II	2,785,000
18. LaSalle 2	do	2,785,000
19. Limerick 1	do	2,785,000
20. Limerick 2	do	2,785,000
21. Millstone 1	Mark I	2,785,000
22. Monticello	do	2,785,000
23. Nine Mile Point 1	do	2,785,000
24. Nine Mile Point 2	Mark II	2,785,000
25. Oyster Creek	Mark I	2,785,000
26. Peach Bottom 2	do	2,785,000
27. Peach Bottom 3	do	2,785,000
28. Perry 1	Mark III	2,785,000
29. Pilgrim	Mark I	2,785,000
30. Quad Cities 1	do	2,785,000
31. Quad Cities 2	do	2,785,000
32. River Bend 1	Mark III	2,785,000
33. Susquehanna 1	Mark II	2,785,000
34. Susquehanna 2	do	2,785,000
35. Vermont Yankee	Mark I	2,785,000

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TABLE V.—BASE ANNUAL FEES FOR OPERATING POWER REACTORS—Continued

Reactors	Containment type	Annual fee
36. Washington Nuclear 2	Mark II	2,782,000
Other Reactor:		
1. Big Rock Point	GE Dry Containment	2,785,000

The "Other Reactor" listed in Table V was not included in the fee base because historically Big Rock Point has been granted a partial exemption from the annual fees. With respect to Big Rock Point, a smaller older reactor, the NRC hereby grants a partial exemption from the FY 1994 annual fees based on a request filed with the NRC in accordance with § 171.11. The total amount of \$0.2 million to be paid by Big

Rock Point has been subtracted from the total amount assessed operating reactors as a surcharge.

Paragraph (b)(3) is revised to change the fiscal year references from FY 1993 to FY 1994. Paragraph (c)(2) is amended to show the amount of the surcharge for FY 1994. This surcharge is added to the base annual fee for each operating power reactor shown in Table V. The purpose of this surcharge is to recover

those NRC budgeted costs that are not directly or solely attributable to operating power reactors but nevertheless must be recovered to comply with the requirements of OBRA-90. The NRC has continued its previous policy decision to recover these costs from operating power reactors.

The FY 1994 budgeted costs related to the additional charge and the amount of the charge are calculated as follows:

[Dollars in millions]

Category of costs	FY 1994 budgeted costs
1. Activities not attributable to an existing NRC licensee or class of licensee:	
a. Reviews for DOE/DOD reactor projects, and West Valley Demonstration Project;	\$2.4
b. International cooperative safety program and international safeguards activities; and	8.2
c. Low-level waste disposal generic activities;	6.0
2. Activities not assessed Part 170 licensing and inspection fees or Part 171 annual fees based on Commission policy:	
a. Licensing and inspection activities associated with nonprofit educational institutions; and	7.8
b. Costs not recovered from Part 171 for small entities.	5.3
Subtotal budgeted costs	\$29.7
Less amount to be assessed to small older reactors .....	.2
Total budgeted costs	\$29.5

The annual additional charge is determined as follows:

$$\frac{\text{Total budgeted costs}}{\text{Total number of operating reactors}} = \frac{\$29.5 \text{ million}}{108} = \$273,000 \text{ per operating power reactor}$$

On the basis of this calculation, an operating power reactor, Beaver Valley 1, for example, would pay a base annual fee of \$2,805,000 and an additional charge of \$273,000 for a total annual fee of \$3,078,000 for FY 1994.

Paragraph (d) is revised to show, in summary form, the amount of the total FY 1994 annual fee, including the surcharge, to be assessed for each major type of operating power reactor.

Paragraph (e) is revised to show the amount of the FY 1994 annual fee for nonpower (test and research) reactors. In FY 1994, \$373,000 in costs are attributable to those commercial and non-exempt Federal government organizations that are licensed to operate test and research reactors.

Applying these costs uniformly to those nonpower reactors subject to fees results in an annual fee of \$62,200 per operating license. The Energy Policy Act establishes an exemption for certain Federally-owned research reactors that are used primarily for educational training and academic research purposes where the design of the reactor satisfies certain technical specifications set forth in the legislation. Consistent with this legislative requirement, the NRC granted an exemption from annual fees for FY 1992 and FY 1993 to the Veterans Administration Medical Center in Omaha, Nebraska, the U.S. Geological Survey for its reactor in Denver, Colorado, and the Armed Forces Radiobiological Institute in Bethesda,

Maryland for its research reactor. This exemption was initially codified in the July 20, 1993 (58 FR 38695) final fee rule at § 171.11(a) and more recently in the March 17, 1994 (59 FR 12543) final rule at § 171.11(a)(2). The NRC intends to continue to grant exemptions from the annual fee to those Federally owned research and test reactors who meet the exemption criteria specified in § 171.11. The NRC is amending § 171.11(a)(2) to exempt from annual fees the research reactor owned by the Rhode Island Atomic Energy Commission.

Section 171.16 Annual fees: Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals,

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and Government agencies licensed by the NRC.

§ 171.16(c) covers the fees assessed for those licensees that can qualify as small entities under NRC size standards. Currently, the NRC assesses two fees for licensees that qualify as small entities under the NRC's size standards. In general, licensees with gross annual receipts of \$250,000 to \$3.5 million pay a maximum annual fee of \$1,800 per licensed category. A second or lower-tier small entity fee of \$400 is in place for licensees with gross annual receipts of less than \$250,000 and small governmental jurisdictions with a population of less than 20,000. Although the amounts of the small entity fees have not changed for FY 1994, they are being published for purposes of convenience.

Paragraph (d) is revised to reflect the FY 1994 budgeted costs for materials licensees, including Government agencies, licensed by the NRC. These fees are necessary to recover the FY 1994 generic costs totalling \$63.7 million that apply to fuel facilities, uranium recovery facilities, spent fuel facilities, holders of transportation certificates and QA program approvals, and other materials licensees, including holders of sealed source and device registrations.

Fee Category 2 is amended by establishing two new fee categories 2.A.(3) and 2.A.(4) relating to the disposal of Section 11e.(2) byproduct

material as defined by the Atomic Energy Act. The current 4.D. category has been eliminated. This action recognizes that (1) part of the budgeted costs for the uranium recovery class of licensees should be allocated to source material licenses that authorize receipt and disposal of 11e.(2) material because some of these budgeted resources are used to regulate these licensees and (2) a further distinction should be made between those licenses whose primary purpose is to authorize disposal of 11e.(2) byproduct material requiring the establishment of a new mill tailings pile for disposal of 11e.(2) material and those non-operating mills that accept 11e.(2) byproduct material for disposal incidental to tailings piles created by mill operations.

In addition, Fee Category 18 is amended to assess fees to the Department of Energy (DOE) for use of the general license provided under 10 CFR 40.27. Currently, DOE is billed for the issuance of transportation Certificates of Compliance. The general license fulfills a requirement of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (Public Law 95-604) that the perpetual custodian of reclaimed uranium mill tailings piles be licensed by the NRC. The § 40.27 general license covers only post-reclamation closure custody and site surveillance. In September 1993, DOE became a general licensee of the NRC because post-reclamation closure

of the Spook, Wyoming site had been achieved. Because DOE now holds an NRC license, it is subject to annual fees. The NRC had previously indicated its intent in the FY 1991 final fee rule to bill DOE for UMTRCA costs once post-closure was achieved and the sites were licensed by the Government (56 FR 31481; July 10, 1991). As a result, DOE will be billed for the costs associated with NRC's UMTRCA review of all activities associated with the facilities assigned to DOE under UMTRCA. As with other licensees, the annual fee for this class of licensees (DOE UMTRCA facilities) will recover the generic and other regulatory costs not recovered through 10 CFR Part 170 fees. Because DOE, as a Federal agency, cannot be assessed Part 170 fees under the IOAA, the NRC will assess annual fees for the total costs of DOE UMTRCA activities to DOE.

Tables VI and VII show the NRC program elements and resources that are attributable to fuel facilities and materials users, respectively. The costs attributable to the uranium recovery class of licensees are those associated with uranium recovery research, licensing and inspection. For transportation, the costs are those budgeted for transportation research, licensing, and inspection. Similarly, the budgeted costs for spent fuel storage are those for spent fuel storage research, licensing, and inspection.

TABLE VI.—ALLOCATION OF NRC FY 1994 BUDGET TO FUEL FACILITY BASE FEES¹

	Total program element		Allocated to fuel facility	
	Program support \$, K	FTE	Program support \$, K	FTE
NMLL (Research)				
Radiation Protection/Health Effects	\$1,575	5.3	\$315	1.1
Environmental Policy and Decommissioning	2,410	9.0	241	.9
NMLL (RES) program total			556	2.0
NMLL (NMSS)				
Fuel Cycle Safety and Safeguards	\$4,783	85.8	\$2,432	57.1
Event Evaluation	0	14.9	0	4.2
Decommissioning	2,215	30.8	309	10.5
Uranium Recovery (Dam Safety)	250	7.6	3	0
NMLL (NMSS) program total			2,744	71.8
NMLL (MSIRIE)				
Incident Response	186	6.0	0	1.0
Enforcement	10	6.8	0	1.2
NMLL MSIRIE program total			0	2.2
Total NMLL			\$3,300	76.0
Total base fee amount allocated to fuel facilities (million ²)				\$20.8
Less part 170 fuel facility fees (million)				4.0

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TABLE VI.—ALLOCATION OF NRC FY 1994 BUDGET TO FUEL FACILITY BASE FEES ¹—Continued

	Total program element		Allocated to fuel facility	
	Program support \$, K	FTE	Program support \$, K	FTE
Part 171 base fees for fuel facilities (million)				\$16.8

¹ Base annual fee includes all costs attributable to the fuel facility class of licensees. The base fee does not include costs allocated to fuel facilities for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

TABLE VII.—ALLOCATION OF FY 1994 BUDGET TO MATERIAL USERS' BASE FEES ¹

	Total program element		Allocated to materials users	
	Program support \$, K	FTE	Program support \$, K	FTE
NMLL (Research)				
Materials licensee performance	\$450	1.2	\$405	1.1
Materials regulatory standards	1,495	12.2	1,346	11.0
Radiation protection/health effects	1,575	5.3	1,134	3.8
Environmental policy and decommissioning	2,410	9.0	1,085	4.1
Total NMLL (RES)			3,970	20.0
NMLL (NMSS)				
Licensing/inspection of materials users	\$965	109.3	\$869	99.5
Event evaluation		16.2		11.4
Information technology	1,100		89	
Decommissioning	2,215	30.8	1,707	12.0
Low level waste—on site disposal	592	14.3	71	2.3
Total NMLL (NMSS)			2,736	125.2
NMLL (MSIRIE)				
Analysis and evaluation of operational data	\$186	6.0	\$167	4.5
Office of Investigations		7.0		6.3
Office of Enforcement	10	6.8	9	5.0
Total NMLL Program			6,882	161.0
Base amount allocated to materials users (million ²)				\$44.1
Less part 170 material users fees (million)				5.5
PART 171 base fees for material users (million)				38.6

¹ Base annual fee includes all costs attributable to the materials class of licensees. The base fee does not include costs allocated to materials licensees for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE and adding the program support funds.

The allocation of the NRC's \$16.8 million in budgeted costs to the individual fuel facilities is based, as in FYs 1991–1993, primarily on the OBRA–90 conferees' guidance that licensees who require the greatest expenditure of NRC resources should pay the greatest annual fee. Because the two high-enriched fuel manufacturing facilities possess strategic quantities of nuclear materials, more NRC safeguards costs (e.g., physical security) are attributable to these facilities. Likewise, more of the safety licensing and inspection costs are allocated to the HEU facilities because more of these resources are used for HEU facilities as

compared to other facilities. However, safety program assessment and safety event evaluation costs for fuel facilities are uniformly allocated to HEU and LEU facilities because these activities apply equally to each of the HEU and LEU facilities.

Using this approach, the base annual fee for each facility is shown below.

Type of facility	Annual fee—safeguards and safety
High enriched fuel:	
Nuclear Fuel Services	\$3,176,000
Babcock and Wilcox	3,176,000

Type of facility	Annual fee—safeguards and safety
Subtotal	6,352,000
Low enriched fuel:	
Siemens Nuclear Power ..	\$1,429,000
Babcock and Wilcox	1,429,000
General Electric	1,429,000
Westinghouse	1,429,000
Combustion Engineering (Hematite)	1,429,000
General Atomics	1,429,000
Subtotal	8,574,000
UF ₆ conversion:	
Allied-Signal Corp	\$1,114,000

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Type of facility	Annual fee— safeguards and safety
Other fuel facilities (3 facilities at \$254,000 each)	762,000
Total	16,802,000

One of Combustion Engineering's (CE) low enriched fuel facilities has not been included in the fee base because of the D.C. Circuit Court of Appeals' decision of March 16, 1993, directing the NRC to grant an exemption for FY 1991 to Combustion Engineering for one of its two facilities. As a result of the Court's decision, the NRC granted an exemption to one of CE's low enriched uranium fuel facilities for FY 1994. The NRC has therefore excluded this facility from the calculation of the FY 1994 annual fees for the low enriched fuel category.

Of the \$2.1 million attributable to the uranium recovery class of licensees, about \$1.5 million will be assessed to the Department of Energy (DOE) to recover the costs associated with DOE facilities under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). These costs were previously recovered from operating power reactors because DOE was not an NRC licensee prior to September 1993 and therefore could not be billed under 10 CFR Part 171. In September 1993, DOE became a general licensee of the NRC because post-reclamation closure of the Spook, Wyoming site had been achieved. Approximately 44 percent of the remaining costs of \$639,000 for uranium recovery is attributable to uranium mills (Class I facilities) and facilities that dispose of 11e.(2) byproduct materials, approximately 39 percent is attributable to those solution mining licensees who do not generate uranium mill tailings (Class II facilities), and the remaining 17 percent is allocated to the other uranium recovery facilities (e.g., extraction of metals and rare earths). The resulting annual fees for each class of licensee are:

- 2.A.(2)—Class I facilities: \$74,500
- 2.A.(2)—Class II facilities: \$41,200
- 2.A.(2)—Other facilities: \$36,200
- 2.A.(3)—11e.(2) disposal: \$67,000
- 2.A.(4)—11e.(2) disposal incidental to existing tailings site: \$8,700

The annual fees for FY 1994 for the uranium recovery class of licensees are less than the FY 1992 fees and are higher than the FY 1993 annual fees. The total amount of fees that must be recovered from uranium recovery commercial licensees has decreased by about 10 percent compared to FY 1993; however, the annual fee per facility has increased for two basic reasons. First,

the amount that is expected to be recovered through part 170 fees has decreased as a result of completing the licensing of the Envirocare 11e.(2) byproduct disposal facility. This requires relatively more costs to be recovered through annual fees. The second cause of the increase is a decrease in the number of licensees in the class to be assessed annual fees for FY 1994.

For spent fuel storage licenses, the generic costs of \$2.2 million have been spread uniformly among those licensees who hold specific or general licenses for receipt and storage of spent fuel at an ISFSI. This results in an annual fee of \$363,500. This represents a fee increase compared to FY 1993 in order to recover the increased budget necessary to perform rulemakings and the regulatory oversight over the increased number of licensees.

To equitably and fairly allocate the \$38.6 million attributable to the approximately 6,500 diverse material users and registrants, the NRC has continued to base the annual fee on the Part 170 application and inspection fees. Because the application and inspection fees are indicative of the complexity of the license, this approach continues to provide a proxy for allocating the costs to the diverse categories of licensees based on how much it costs NRC to regulate each category. The fee calculation also continues to consider the inspection frequency, which is indicative of the safety risk and resulting regulatory costs associated with the categories of licensees. In summary, the annual fee for these categories of licensees is developed as follows:

Annual Fee=(Application Fee+Inspection Fee/Inspection Priority)xConstant+(Unique Category Costs).

The constant is the multiple necessary to recover \$38.6 million and is 2.6 for FY 1994. The unique costs are any special costs that the NRC has budgeted for a specific category of licensees. For FY 1994, unique costs of approximately \$2.6 million were identified for the medical improvement program which is attributable to medical licensees. Materials annual fees for FY 1994 are 13 to 17 percent higher compared to the FY 1993 annual fees. There are two basic reasons for the changes in the fees from FY 1993. First, the FY 1994 budgeted amount attributable to materials licensees is about 10 percent higher than the comparable FY 1993 to reflect the cost necessary to regulate this class of licensees and the direct allocation of certain budgeted costs as opposed to including them in the hourly rate.

Second, the number of licensees to be assessed annual fees in FY 1994 has decreased (from about 6,800 to about 6,500), resulting in a 4 percent increase in fees. The materials fees must be established at these levels in order to comply with the mandate of OBRA-90 to recover approximately 100 percent of the NRC's FY 1994 budget authority.

A materials licensee may pay a reduced annual fee if the licensee qualifies as a small entity under the NRC's size standards and certifies that it is a small entity using NRC Form 526.

To recover the \$4.0 million attributable to the transportation class of licensees, \$923,000 will be assessed to the Department of Energy (DOE) to cover all of its transportation casks under Category 18. The remaining transportation costs for generic activities (\$3.1 million) are allocated to holders of approved QA plans. The annual fee for approved QA plans is \$64,700 for users and fabricators and \$900 for users only.

The amount or range of the FY 1994 base annual fees for all materials licensees is summarized as follows:

MATERIALS LICENSES BASE ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel.	\$3.2 million.
Part 70—Low enriched fuel.	\$1.4 million.
Part 40—UF ₆ conversion.	\$1.1 million.
Part 40—Uranium recovery.	\$36,200 to \$74,500.
Part 30—Byproduct material.	\$970 to \$30,900 ¹ .
Part 71—Transportation of radioactive material.	\$900 to \$64,700.
Part 72—Independent storage of spent nuclear fuel.	\$363,500.

¹ Excludes the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies, which is \$430,500.

Paragraph (e) is amended to establish the additional charge to be added to the base annual fees shown in paragraph (d) of this final rule. The Commission is continuing the approach used in FY 1993 so as to assess the budgeted low-level waste (LLW) costs to two broad categories of licensees (large LLW generators and small LLW generators) based on historical disposal data. This surcharge continues to be shown, for convenience, with the applicable categories in paragraph (d). Although these NRC LLW disposal regulatory activities are not directly attributable to regulation of NRC materials licensees, the costs nevertheless must be recovered

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in order to comply with the requirements of OBRA-90. For FY 1994, the additional charge recovers approximately 18 percent of the NRC budgeted costs of \$8.1 million relating to LLW disposal generic activities from small generators, which are comprised of materials licensees that dispose of LLW. The percentage distribution reflects the deletion of LLW disposed by Agreement State licensees. The FY 1994 budgeted costs related to the additional charge for LLW and the amount of the charge are calculated as follows:

Category of costs	FY 1994 budgeted costs (\$ in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee, i.e., LLW disposal generic activities	\$8.1

Of the \$8.1 million in budgeted costs shown above for LLW activities, 82 percent of the amount (\$6.7 million) are allocated to the 120 large waste generators (reactors and fuel facilities) included in 10 CFR Part 171. This results in an additional charge of \$55,600 per facility. Thus, the LLW charge will be \$55,600 per HEU, LEU, UF₆ facility, and each of the other 3 fuel facilities. The remaining \$1.4 million is allocated to the material licensees in categories that generate low level waste (965 licensees) as follows: \$1,500 per materials license except for those in Category 17. Those licensees that generate a significant amount of low level waste for purposes of the calculation of the \$1,500 surcharge are in fee Categories 1.B, 1.D, 2.C, 3.A, 3.B, 3.C, 3.L, 3.M, 3.N, 4.A, 4.B, 4.C, 5.B, 6.A, and 7.B. The surcharge for licenses in fee Category 17, which also generate and/or dispose of low level waste, is \$22,800.

Of the \$6.3 million not recovered from small entities, \$1.0 million is allocated to fuel facilities and other materials licensees. This results in a surcharge of \$170 per category for each fuel facility and materials licensee that is not eligible for the small entity fee.

On the basis of this calculation, a fuel facility (a high enriched fuel fabrication licensee, for example) pays a base annual fee of \$3,176,000 and an additional charge of \$55,770 for LLW activities and small entity costs. A medical center with a broad-scope program pays a base annual fee of \$30,900 and an additional charge of \$1,670, for a total FY 1994 annual fee of \$32,570.

Section 171.17 Proration

10 CFR 171.17 is amended to add a proration provision for materials licenses and to revise the provision for reactors. The annual fee for materials licenses would be prorated based on applications filed after October 1 of the fiscal year either to terminate a license or obtain a POL. Those materials licensees who file applications between October 1 and March 31 of the fiscal year to terminate the license or obtain a POL will be assessed one-half the annual fee stated in § 171.16(d) for the affected fee category(ies). Those materials licensees who file applications on or after April 1 of the fiscal year to terminate a license or obtain a POL will be assessed the full annual fee for that fiscal year. Those licensees who file for termination or a POL must also permanently cease operations of those licensed activities during the periods mentioned for the fee to be reduced. Similarly, materials licensees who were issued new licenses during the fiscal year will be charged a prorated annual fee based on the date of issuance of the new license. New materials licenses issued during the period October 1 through March 31 will be assessed one-half of the annual fee stated in § 171.16(d) for the applicable fee categories for that fiscal year. New licenses issued on or after April 1 of the fiscal year will not be assessed the annual fee for that fiscal year.

The proration provision in § 171.17 applicable to reactors is amended to provide that for licensees who have requested a license amendment to withdraw operating authority permanently during the FY the annual fee will be prorated based on the number of days during the FY the operating license was in effect before the possession-only license was issued or the license was terminated.

Footnote 1 of 10 CFR 171.16(d) is amended to provide for waiver of the annual fees for those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage only licenses before October 1, 1993, and permanently ceased licensed activities entirely by September 30, 1993. All other licensees and approval holders who held a license or approval on October 1, 1993 are subject to the FY 1994 annual fees.

Section 171.19 Payment

This section is revised to give credit for partial payments made by certain licensees in FY 1994 toward their FY 1994 annual fees. The NRC anticipates

that the first, second, and third quarterly payments for FY 1994 will have been made by operating power reactor licensees and some materials licensees before the final rule is effective. Therefore, NRC will credit payments received for those three quarters toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill in order to recover the full amount of the revised annual fee or to make refunds, as necessary. As in FY 1993, payment of the annual fee is due on the effective date of the rule and interest accrues from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule.

During the past three years many licensees have indicated that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In responding to licensees about this matter, the NRC has stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that the annual fee will be assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. To remove any uncertainty, the NRC issued minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7 on July 20, 1993 (58 FR 38700).

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for the final regulation.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

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VII. Regulatory Analysis

With respect to 10 CFR Part 170, this final rule was developed pursuant to Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia, *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied, 444 U.S. 1102 (1980). The Court held that—

- (1) The NRC had the authority to recover the full cost of providing services to identifiable beneficiaries;
- (2) The NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations;
- (3) The NRC could charge for costs incurred in conducting environmental reviews required by NEPA;
- (4) The NRC properly included the costs of uncontested hearings and of administrative and technical support services in the fee schedule;
- (5) The NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and
- (6) The NRC's fees were not arbitrary or capricious.

With respect to 10 CFR Part 171, on November 5, 1990, the Congress passed Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90) which required that for FYs 1991 through 1995, approximately 100 percent of the NRC budget authority be recovered through the assessment of fees. OBRA-90 was amended in 1993 to extend the 100 percent fee recovery requirement for NRC through 1998. To accomplish this statutory requirement, the NRC, in accordance with § 171.13, is publishing the final amount of the FY 1994 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. OBRA-90 and the Conference Committee Report specifically state that—

- (1) The annual fees be based on the Commission's FY 1994 budget of \$535.0 million less the amounts collected from Part 170 fees and the funds directly appropriated from the NWF to cover the NRC's high level waste program;
- (2) The annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and
- (3) The annual fees be assessed to those licensees the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment.

Therefore, when developing the annual fees for operating power reactors, the NRC continued to consider the various reactor vendors, the types of containment, and the location of the operating power reactors. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

10 CFR Part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 490 U.S. 1045 (1989).

10 CFR Parts 170 and 171, which established fees based on the FY 1989 budget, were also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S. Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

The NRC's FY 1991 annual fee rule was largely upheld by the D.C. Circuit Court of Appeals in *Allied-Signal v. NRC*, 988 F.2d 146 (D.C. Cir. 1993).

VIII. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority through the assessment of user fees. OBRA-90 further requires that the NRC establish a schedule of charges that fairly and equitably allocates the aggregate amount of these charges among licensees.

This final rule establishes the schedules of fees that are necessary to implement the Congressional mandate for FY 1994. The final rule results in an increase in the fees charged to most licensees, and holders of certificates, registrations, and approvals, including those licensees who are classified as small entities under the Regulatory Flexibility Act. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as Appendix A to this final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these final amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, Registrations, Approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 170, and 171.

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Appendix A to This Final Rule— Regulatory Flexibility Analysis for the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

I. Background.

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act, the NRC adopted size standards for determining which NRC licensees qualify as small entities (50 FR 50241; December 9, 1985). These size standards were clarified November 6, 1991 (56 FR 56672). The NRC size standards are as follows:

(1) A small business is a business with annual receipts of \$3.5 million or less except private practice physicians for which the standard is annual receipts of \$1 million or less.

(2) A small organization is a not-for-profit organization which is independently owned and operated and has annual receipts of \$3.5 million or less.

(3) Small governmental jurisdictions are governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000.

(4) A small educational institution is one that is (i) supported by a qualifying small governmental jurisdiction, or (ii) one that is not state or publicly supported and has 500 employees or less.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. OBRA-90 was amended in 1993 to extend the 100 percent recovery requirement for NRC through 1998. For FY 1991, the amount collected was approximately \$445 million; for FY 1992, approximately \$492.5 million; for FY 1993 about \$518.9 million and the

amount to be collected in FY 1994 is approximately \$513 million.

To comply with OBRA-90, the Commission amended its fee regulations in 10 CFR Parts 170 and 171 in FY 1991 (56 FR 31472; July 10, 1991) in FY 1992, (57 FR 32691; July 23, 1992) and in FY 1993 (58 FR 38666; July 20, 1993) based on a careful evaluation of over 1,000 comments. These final rules established the methodology used by NRC in identifying and determining the fees assessed and collected in FY 1991, FY 1992, and FY 1993. The NRC has used the same methodology established in the FY 1991, FY 1992, and FY 1993 rulemakings to establish the fees to be assessed for FY 1994 with the following exceptions: (1) the Commission has reinstated the annual fee exemption for nonprofit educational institutions; and (2) in this final rule, the NRC has directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste. The methodology for assessing low-level waste (LLW) costs was changed in FY 1993 based on the U.S. Court of Appeals decision dated March 16, 1993 (888 F.2d 146, (D.C. Cir. 1993)). The FY 1993 LLW allocation method has been continued in the FY 1994 final rule.

II. Impact on small entities.

The comments received on the proposed FY 1991, FY 1992, FY 1993 and FY 1994 fee rule revisions and the small entity certifications received in response to the final FY 1991, FY 1992, and FY 1993 fee rules indicate that NRC licensees qualifying as small entities under the NRC's size standards are primarily those licensed under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these materials licensees, the NRC estimates that about 18 percent (approximately 1,300 licensees) qualify as small entities. This estimate is based on the number of small entity certifications filed in response to the FY 1991, FY 1992, and FY 1993 fee rules. In FY 1993, the NRC conducted a survey of its materials licensees. The results of this survey indicated that about 25 percent of these licensees could qualify as small entities under the current NRC size standards.

The commenters on the FY 1991, FY 1992, FY 1993, and FY 1994 proposed

fee rules indicated the following results if the proposed annual fees were not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put it at an extreme disadvantage with its much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.
 - Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in about 10 percent of the well-logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.
 - Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.
 - Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.
- Over the past three years, approximately 2,600 license, approval, and registration terminations have been requested. Although some of these terminations were requested because the license was no longer needed or licenses or registrations could be combined, indications are that other termination requests were due to the economic impact of the fees.

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The NRC continues to receive written and oral comments from small materials licensees. These comments indicate that the \$3.5 million threshold for small entities is not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

To alleviate the continuing significant impact of the annual fees on a substantial number of small entities, the NRC considered alternatives, in accordance with the RFA. These alternatives were evaluated in the FY 1991 rule (56 FR 31472; July 10, 1991), in the FY 1992 rule (57 FR 32691; July 23, 1992), and in the FY 1993 rule (58 FR 38666; July 20, 1993). The alternatives considered by the NRC can be summarized as follows.

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

The NRC has reexamined the FY 1991, FY 1992, and FY 1993 evaluation of these alternatives. Based on that reexamination, the NRC continues to support the previous conclusion. That is, the NRC continues to believe that establishment of a maximum fee for small entities is the most appropriate option to reduce the impact on small entities.

The NRC established, and is continuing for FY 1994, a maximum annual fee for small entities. The RFA and its implementing guidance do not provide specific guidelines on what constitutes a significant economic impact on a small entity. Therefore, the NRC has no benchmark to assist it in determining the amount or the percent of gross receipts that should be charged to a small entity. For FY 1994, the NRC will rely on the analysis previously completed that established a maximum annual fee for a small entity by comparing NRC license and inspection fees under 10 CFR Part 170 with Agreement State fees for those fee categories that are expected to contain a substantial number of small entities. Because these fees have been charged to small entities, the NRC continues to believe that these fees, or any adjustments to these fees during the past year, do not have a significant impact on them. In issuing this final rule for FY

1994, the NRC concludes that the materials license and inspection fees do not have a significant impact on a substantial number of small entities and that the maximum annual small entity fee of \$1,800 be maintained to alleviate the impact of the fees on small entities.

By maintaining the maximum annual fee for small entities at \$1,800, the annual fee for many small entities will be reduced while at the same time materials licensees, including small entities, pay for most of the FY 1994 costs (\$33.3 million of the total \$38.8 million) attributable to them. Therefore, the NRC is continuing, for FY 1994, the maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity. Note that the costs not recovered from small entities are allocated to other materials licensees and to operating power reactors.

While reducing the impact on many small entities, the Commission agrees that the current maximum annual fee of \$1,800 for small entities, when added to the Part 170 license and inspection fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, as in FY 1992 and FY 1993, the NRC will continue the lower-tier small entity annual fee of \$400 for small entities with relatively low gross annual receipts for FY 1994. This lower-tier small entity fee was established in the final rule published in the Federal Register on April 17, 1992 (57 FR 13625).

In establishing the annual fee for lower tier small entities, the NRC continues to retain a balance between the objectives of the RFA and OBRA-90. This balance can be measured by (1) the amount of costs attributable to small entities that is transferred to larger entities (the small entity subsidy); (2) the total annual fee small entities pay, relative to this subsidy; and (3) how much the annual fee is for a lower tier small entity. Nuclear gauge users were used to measure the reduction in fees because they represent about 40 percent of the materials licensees and most likely would include a larger percentage of lower tier small entities than would other classes of materials licensees. The Commission is continuing an annual fee of \$400 for the lower tier small entities to ensure that the lower tier small entities receive a reduction (75 percent for small gauge users) substantial enough to mitigate any severe impact. Although other reduced fees would result in lower subsidies, the Commission believes that the amount of the associated annual fees, when added to the license and inspection fees,

would still be considerable for small businesses and organizations with gross receipts of less than \$250,000 or for governmental entities in jurisdictions with a population of less than 20,000.

III. Summary

The NRC has determined the annual fee significantly impacts a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirement to consider means of reducing the impact of the proposed fee on small entities. On the basis of its regulatory flexibility analyses, the NRC concludes that a maximum annual fee of \$1,800 for small entities and a lower tier small entity annual fee of \$400 for small businesses and non-profit organizations with gross annual receipts of less than \$250,000, and small governmental entities with a population of less than 20,000, will reduce the impact on small entities. At the same time, these reduced annual fees are consistent with the objectives of OBRA-90. Thus, the revised fees for small entities maintain a balance between the objectives of OBRA-90 and the RFA. The NRC has used the methodology and procedures developed for the FY 1991, the FY 1992, and the FY 1993 fee rules in this final rule establishing the FY 1994 fees. Therefore, the analysis and conclusions established in the FY 1991, the FY 1992, and the FY 1993 rules remain valid for this final rule for FY 1994.

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60 FR 32218
Published 6/20/95
Effective 7/20/95

10 CFR Parts 170 and 171

RIN 3150-AF07

Revision of Fee Schedules; 100% Fee Recovery, FY 1995

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the licensing, inspection, and annual fees charged to its applicants and licensees. The amendments are necessary to implement the Omnibus Budget Reconciliation Act of 1990, which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year (FY) 1995 less amounts appropriated from the Nuclear Waste Fund (NWF). The amount to be recovered for FY 1995 is approximately \$503.6 million.

EFFECTIVE DATE: July 20, 1995.

ADDRESSES: Copies of comments received and the agency workpapers that support these final changes to 10 CFR Parts 170 and 171 may be examined at the NRC Public Document Room at 2120 L Street, NW. (Lower Level), Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-415-6213.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Responses to Comments.
- III. Final Action.
- IV. Section-by-Section Analysis.
- V. Environmental Impact: Categorical Exclusion.
- VI. Paperwork Reduction Act Statement.
- VII. Regulatory Analysis.
- VIII. Regulatory Flexibility Analysis.
- IX. Backfit Analysis.

I. Background

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), enacted November 5, 1990, requires that the NRC recover approximately 100 percent of its budget authority, less the amount appropriated from the Department of Energy (DOE) administered NWF, for FYs 1991 through 1995 by assessing fees. OBRA-90 was amended in 1993 to extend the NRC's 100 percent fee recovery requirement through FY 1998.

The NRC assesses two types of fees to recover its budget authority. First,

license and inspection fees, established in 10 CFR part 170 under the authority of the Independent Offices Appropriation Act (IOAA), 31 U.S.C. 9701, recover the NRC's costs of providing individually identifiable services to specific applicants and licensees. Examples of the services provided by the NRC for which these fees are assessed are the review of applications for the issuance of new licenses or approvals, and amendments to or renewal of licenses or approvals. Second, annual fees, established in 10 CFR part 171 under the authority of OBRA-90, recover generic and other regulatory costs not recovered through 10 CFR part 170 fees.

On March 20, 1995 (60 FR 14670), the NRC published its proposed rule establishing the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1995, less the appropriation received from the Nuclear Waste Fund.

Several changes were proposed by the NRC to the fees to be assessed for FY 1995. These changes were summarized in the proposed rule (60 FR 14671; March 20, 1995) and are as follows:

1. Change the method for allocating the budgeted costs that cause fairness and equity concerns. Approximately \$56 million would be allocated to all NRC licensees based on the budgeted dollars for each class of licensees.

2. Eliminate the materials "flat" inspection fees in 10 CFR 170.31 and include the inspection costs with the annual materials fees in 10 CFR 171.16(d). These actions would streamline the license fee process and result in more predictable fees.

3. Change the methodology for calculating the professional hourly rate to better align the budgeted costs with the major classes of licensees. Two professional staff-hour rates were proposed instead of a single rate.

4. Change the methodology for calculating annual fees for power reactors, fuel facilities, and uranium recovery licensees to improve the relationship between annual fees and the cost of providing regulatory services to the classes and subclasses of licensees, and to improve NRC efficiency.

5. Implement the newly promulgated NRC small entity size standards and establish a new lower-tier size standard for annual fee purposes.

The Commission held a public meeting on March 15, 1995, at which the NRC staff briefed the Commission on the proposed changes for FY 1995. A transcript of the Commission meeting is available and has been placed in the Public Document Room.

The American Mining Congress¹ filed a Petition for Rulemaking which requested among other things that (1) annual fees not be assessed for mills in a standby status; and (2) a licensee review board to oversee NRC fees be established. The Commission denied the request on April 28, 1995 (60 FR 20918) noting that (1) the NRC will continue its current practice of providing available backup data to support 10 CFR Part 170 licensing and inspection billings upon request by the applicant or licensee and (2) petitioner's request that the Department of Energy be assessed fees for Uranium Mill Tailings Radiation Control Act (UMTRCA) actions was implemented in the final fee rule for FY 1994.

II. Responses to Comments

The NRC received twenty-two comments on the proposed rule. Although the comment period ended on April 19, 1995, the NRC has reviewed and evaluated all comments received, including those that were late.

Many of the comments were similar in nature. For evaluation purposes, these comments have been grouped, as appropriate, and addressed as single issues in this final rule. The comments are as follows:

A. Comments regarding the major changes proposed in the FY 1995 fee rule.

1. Change the Method for Allocating Those Budgeted Costs (About \$56 Million) That Cause Fairness and Equity Concerns

Comment. The commenters agreed that the proposed method for allocating approximately \$56 million in budgeted costs for NRC activities which are not directly related to the cost of regulating licensees represented a more equitable method for distributing the costs. Many commenters indicated that, pending legislative relief by Congress to remedy this inequitable situation, they supported the proposal to treat these costs similar to overhead and distribute these costs based on the percentage of the budget directly attributable to a class of licensees. However, the commenters also believed that these costs should not be paid by any licensee and recommended that the NRC should continue to urge Congress to modify OBRA-90 to remove these costs from the fee base. For example, one commenter stated that the proposed 89% allocation of these costs to power reactors results in a charge of \$511,000

¹ The American Mining Congress merged with the National Coal Association on February 13, 1995, and is now the National Mining Association.

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per operating power reactor. The commenter argued that "power reactor licensees should not have to bear this ever increasing additional fee charge for NRC agency costs that are not related to the regulatory costs of these licensees. Accordingly, these costs should not be included in the user fee base to be recovered from power reactor licensees."

Response. The NRC is adopting in this final rule the allocation method in the proposed rule because it represents an equitable way to allocate the costs and most of the comments supported use of the revised methodology. As noted in the comments, on February 23, 1994, the NRC submitted its report to Congress on fees in compliance with the Energy Policy Act of 1992. This report concluded that modifications to existing statutes governing NRC fees are necessary to alleviate licensees' major concerns about fairness and equity and to reduce the NRC administrative burden resulting from assessing fees. The report recommended enactment of legislation that would reduce the amount to be recovered from fees from 100 percent of the NRC budget to approximately 90 percent, and eliminate the requirement that NRC assess 10 CFR Part 170 fees. Because the requested legislation has not been enacted, the NRC in this final rule will allocate the costs (approximately \$56 million) that have raised fairness and equity concerns among the broadest base of NRC licensees. The Commission will continue to discuss and work with the Congress to make fees more fair and equitable.

2. Streamline and Stabilize Fees

Comment. Commenters, for the most part, supported the proposal to stabilize fees by adjusting the annual fees starting in FY 1996 by the percentage change (decrease or increase) in the NRC's total budget. Commenters also supported the NRC's plan to reexamine this approach should there be a substantial change in the total NRC budget or in the magnitude of a specific budget allocation to a specific class of licensees. Commenters also were in agreement that the "flat" materials inspection fees of 10 CFR part 170 should be eliminated and the costs included in the 10 CFR Part 171 annual fees. Most commenters agreed that the proposed changes represent a simplification and streamlining of the fee-setting procedures and are necessary in order to eliminate the large swings in annual fees that have occurred in past years and to allow for greater predictability of fees. Other commenters indicated, however, that they are

concerned about the simple annual percentage change adjustment to future annual fees because there has been no resolution of certain long-standing concerns associated with the fairness and equity of NRC fees.

Response. The NRC is adopting in this final rule the proposed methodology to streamline and stabilize fees based on the comments received supporting the methodology. Although not a specific change in this rule, the NRC plans to adjust the annual fees only by the percentage change in NRC's total budget beginning in FY 1996. The NRC believes that this action will help stabilize and improve the predictability of fees. The fees established in this final rule will be used as the base annual fee in subsequent years and the percentage change (plus or minus) in the NRC total budget, adjusted to reflect changes in the total number of licensees paying fees and estimated collections from 10 CFR part 170 licensing and inspection fees, will be used to establish annual fees. However, the NRC will make modifications should there be a substantial change in the NRC budget or in the magnitude of a specific budget allocation to a class of licensees. To streamline fees, the NRC is eliminating the materials "flat" inspection fees in 10 CFR part 170 by including the cost of inspections in certain materials licensees' 10 CFR part 171 annual fees.

3. Change the Methodology for Calculating the Professional Hourly Rate to Better Align the Budgeted Costs With the Major Classes of Licensees

Comment. All commenters responding to this proposed change supported the revised method of calculating hourly rates to separately, and more equitably, allocate the costs associated with the reactor and materials programs. Commenters believe that the new dual rate structure, which establishes different rates for reactor and materials reviews, is inherently fairer and more equitable to licensees. Most commenters were pleased that the rates for both the reactor and materials classes of applicants have been reduced as compared to FY 1994 and indicated that changing the method of calculating hourly rates is a step in the right direction towards providing a more reasonable relationship to the cost of providing regulatory services. Commenters supported the use of the "cost center" concept to identify and allocate the NRC budgeted resources to different types of major programs, namely reactor and material licensees, and indicated that this methodology is more consistent with Congressional intent that the NRC identify and

properly assess fees to the entities that utilize NRC resources and regulatory services.

Other commenters, however, indicated that while they appreciate the 13 percent reduction in the professional hourly rate for the materials program (from \$133 per hour to \$116 per hour), applying such a uniformly high rate for NRC staff cannot be justified. These commenters point out that the \$116 hourly rate equals or exceeds the hourly charges of senior consultants, principals, or project managers at major consulting firms and substantially exceeds the generally accepted rate for technical staff performing similar work in private industry. Commenters encouraged the NRC to continue examining its budget structure and cost allocation methods so that the hourly rate can be made consistent with and representative of comparable services performed by private industry. One commenter stated that the NRC has still not adequately explained the derivation of the hourly rate, aside from basing it on a presumed number of chargeable hours per full-time equivalent, or how it relates to the services provided. Another commenter stated that the hourly rates are arbitrary and do not reflect the costs of providing regulatory services to licensees.

Response. In this final rule, the NRC has established two professional hourly rates for FY 1995 which will be used to determine the 10 CFR Part 170 fees. A rate of \$123 per hour is established in § 170.20 for the reactor program and a second rate of \$116 per hour is established in § 170.20 for the nuclear materials and nuclear waste programs. The two rates are based on the "cost center" concept that is now being used for budgeting purposes.

The NRC professional hourly rates are established to recover approximately 100 percent of the agency's Congressionally-approved budget, less the appropriation from the Nuclear Waste Fund (NWF), as required by OBRA-90. The rates reflect the NRC cost per direct professional hour. This cost includes the salary and benefits for the direct hours, and a prorata share of the salary and benefits for the program and agency overhead and agency general and administrative expenses (e.g., rent, supplies, and information technology). Both the method and budgeted costs used by the NRC in the development of the hourly rates of \$123 and \$116 are discussed in detail in Part III, Section-by-Section Analysis, relating to § 170.20 of the proposed rule (60 FR 14676; March 20, 1995) and the same section of this final rule. For example, Table III shows the budgeted costs and

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the direct FTEs that must be recovered through fees assessed for the hours expended by the direct FTEs. Additional details on the hourly rate are provided in the NRC workpapers located in the Public Document Room.

4. Modify NRC Small Entity and Lower-Tier Size Standards for Annual Fee Purposes

Comment. Two commenters addressed the changes proposed by the NRC for small entity fees. While generally supporting the changes, they believed additional changes should be made. One commenter stated that while he was relieved to see the dramatic reduction in materials annual fees, the company's well logging department of only six employees is still unable to qualify as a small entity even under the new standard because the overall gross annual receipts of the consulting company exceed \$7 million. The second commenter stated that the proposed rule that would raise the dollar threshold for a medical program from \$1 million to \$5 million will afford him great relief and ensures that service will continue to be provided to patients. The commenter, however, believes that a more equitable approach would be to base fees on the nuclear medicine activity levels or nuclear medicine billing-receipts levels rather than the total dollar volume of the entire company.

Response. The NRC uses the receipts-based size standards established by the Small Business Administration (SBA) to establish its own small entity size standards. The SBA recently adjusted its receipts-based size standard levels to account for the effects of inflation. The NRC adjusted its receipts-based size standards in turn from \$3.5 million to \$5 million, to conform to the SBA rule (60 FR 18344; April 11, 1995). The NRC has also eliminated the separate \$1 million size standard for private practice physicians and will apply the receipts-based standard of \$5 million to this class of licensees. This mirrors the revised SBA standard of \$5 million for medical practitioners. The NRC believes that these actions will reduce the impact of annual fees on small businesses.

With respect to basing fees on the gross receipts for a department within a company, or on activity levels or nuclear medicine billing-receipts levels rather than the total dollar volume of the entire entity, the NRC's size standards are based on the SBA guidance which defines annual receipts as those which include "revenues from sales of products or services, interest, rent, fees, commissions and/or whatever sources derived." Moreover, as NRC has stated previously, it is impractical to

base fees on the criteria suggested by the commenter. See Regulatory Flexibility Analysis in Appendix A to the final rule published July 10, 1991 (56 FR 31511-31513).

5. Change the Methodology for Calculating Annual Fees for Power Reactors, Fuel Facilities, and Uranium Recovery Licensees

Comment. All the commenters representing the power reactor, fuel facility, and uranium recovery industries supported the simplification of annual fees and are encouraged that the annual fees have been reduced compared to FY 1994 levels.

Commenters from the reactor industry favored a uniform fee for each operating power reactor. Commenters from the uranium recovery industry supported attempts to make the annual fees more accurately reflect the cost of providing regulatory services and agreed that the proposed fees are far more reasonable than in past years. However, these commenters believe that NRC needs to address a fundamental industry concern that, as the industry continues to shrink in size thereby decreasing the number of licensees being charged annual fees, the costs associated with regulatory services will continue to increase significantly for each remaining licensee. This trend will force more hardships on an industry that is already severely depressed. Other uranium recovery licensees commented that they are concerned with the NRC's proposed fee calculation matrix, which uses a qualitative estimation ranking of "significant", "some", "minor", or "none" to determine a factor used for establishing the annual fee amount for each licensee. Commenters suggest a more quantitative approach should be applied, using actual costs and resource time allocations, to determine a more accurate fee assessment schedule.

Response. In this final rule, the NRC has established a single uniform annual fee for each operating power reactor and has refined its method of calculating annual fees for fuel facilities and uranium recovery facilities. The NRC indicated in the final FY 1994 fee rule that given the questions raised at that time by B&W Fuel Company, General Atomics, and other fuel facilities, it would reexamine the fuel facility subclass categorizations, and include any restructuring resulting from this reexamination in the FY 1995 proposed rule for notice and comment (59 FR 36901; July 20, 1994). The NRC's revised methodologies for determining annual fees for fuel facility and uranium recovery licensees, described in the proposed rule, are based on this

reexamination. These revised methodologies have been used to determine the final FY 1995 annual fees. The use of the revised methodologies results in an annual fee that more accurately reflects the cost of providing regulatory services to the subclasses of fuel facility and uranium recovery licensees. The revised methodologies are explained in more detail in Section IV—Section-by-Section Analysis of this final rule.

With respect to the suggestion that a more quantitative approach be used to develop the annual fees, the NRC has corroborated the qualitative estimates with resource and time allocation data where such data exist. However, such data in some cases are not available at the level necessary to corroborate the qualitative determinations. The NRC believes that in such cases the approach to be used still results in a more fair and accurate annual fee being charged to fuel facility and uranium recovery licensees.

In response to the comment relative to annual fee increases as a result of the decrease in the number of licenses, the changes in this final rule to stabilize fees should minimize large fee changes as a result of decreases in licenses. See response to Comment A.1.

B. Other Comments

1. Amendments to § 170.11

Comment. One commenter supported the proposal to amend § 170.11 to conform to section 161w. of the Atomic Energy Act which would permit charging 10 CFR Part 170 fees to not only power reactors operated by the Tennessee Valley Authority and other Federal government entities, but also to uranium enrichment facilities operated by the United States Enrichment Corporation (USEC).

Response. The NRC has been assessing the USEC 10 CFR Part 170 fees under the authority provided in 161w. of the Atomic Energy Act of 1954, as amended (AEA). The NRC is amending § 170.11 to conform its regulations to this statutory provision.

2. Low-Level Waste Costs

Comment. One commenter was concerned that the proposed fee schedule does not adequately reflect the long-term regulatory costs which are associated with power reactors. The commenter believed that the NRC's \$7 million in annual costs for generic low-level waste work is low in comparison to long-term costs associated with these activities. The commenter indicated that it might be prudent to assume that the long-term costs associated with low-

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level waste sites will eventually exceed the revenues immediately collected upon disposal.

Response. The amount of \$7 million for NRC's low-level waste activities is the amount identified in the FY 1995 budget to be recovered through fees for these activities. If the NRC costs of these activities increase over the long term and are included in the NRC budget, the NRC is required by OBRA-90 to identify and to recover the increased costs from its licensees in the year in which the costs are budgeted. OBRA-90 does not permit the NRC to recover potential future costs that are not included in the current FY 1995 budget.

3. Spent Fuel Storage

Comment. One commenter encouraged the NRC to ensure that any costs associated with spent fuel storage and transportation, particularly the costs associated with the review of the Department of Energy's (DOE) multi-purpose canister program, are kept properly separated from the costs for specific utility licensing actions. Because these activities are funded from different sources, the commenter stated that NRC must ensure that the cost burden for the DOE reviews is not reflected in utility licensing fees. The commenter noted that in the FY 1995 proposed rule there is no explanation for maintaining the fees for general licenses for storage of spent fuel at substantially higher levels than the fee in 1992 (\$43,000) or 1993 (\$136,000). The commenter questioned whether the fee charged to spent fuel storage licensees includes amounts allocated for other activities.

Response. The costs associated with the review of the DOE's multi-purpose canister program are costs related to the High-Level Waste program which are appropriated from the High Level Waste Fund and separated from specific utility licensing actions. Therefore, in accordance with OBRA-90, the DOE review costs are not included in utility licensing fees, but rather are recovered from the Nuclear Waste Fund. Although the FY 1995 annual fee for spent storage licenses (\$279,000) is higher than in FY 1992 (\$43,000) or 1993 (\$136,000), it is lower than the fee assessed in FY 1994 (\$365,170). The reasons for the increases over FY 1992 and FY 1993 were explained in detail in the final FY 1994 rule (59 FR 36902; July 20, 1994). To recap, first, the budgeted amount necessary to regulate spent fuel facilities increased to provide regulatory oversight for the increased number of facilities. Additionally, as the licensing of these facilities was completed, the amount of fees from 10 CFR part 170

necessarily decreased. This resulted in an increased amount that must be recovered from annual fees in 10 CFR part 171.

4. Annual Fees Should Be Prorated When a License is Downgraded

Comment. One commenter proposed that § 171.17(b) be amended to allow proration of annual fees for licenses that are downgraded during the year.

Response. The NRC agrees with the commenter that some provision should be made in the annual fee regulations for those instances where a license is downgraded to a license category with a lower annual fee during the fiscal year. Although the NRC currently has in place a system to track applications for new licenses and terminations which can be readily used for fee purposes, no similar system exists that could easily track upgrades or downgrades of licenses. As a result, § 171.17 is amended to allow for proration of the annual fee for a downgraded license upon request of the licensee. Such a request must be filed with the NRC within 90 days from the effective date of the final rule establishing the annual fees for which a proration is sought. Absent extraordinary circumstances, any request for proration of the annual fee for a downgraded license filed beyond that date will not be considered.

If a timely proration request is filed, annual fees for licenses downgraded after October 1 of a fiscal year will be prorated on the basis of when the applications for downgrade are received by the NRC, provided the licensee permanently ceased the stated activities during the specified period. Annual fees for licenses for which applications to downgrade are filed during the period October 1 through March 31 of the fiscal year will be prorated as follows: (1) Licenses for which applications have been filed to reduce the scope of the license from a higher fee category(ies) to a lower fee category(ies) will be assessed one-half the annual fee for the higher fee category(ies) and one-half the annual fee for the lower fee category(ies), and, if applicable, the full annual fee for fee categories not affected by the downgrade; and (2) licenses with multiple fee categories for which applications have been filed to downgrade by deleting a fee category will be assessed one-half the annual fee for the fee category being deleted and the full annual fee for the remaining categories. Licenses for which applications for downgrade are filed on or after April 1 of the fiscal year are assessed the full fee for that fiscal year.

5. Avoid Billing for Services Rendered One Year Prior to Billing Date

Comment. One commenter proposed that the NRC void any bill for costs of regulatory services that were performed more than one year prior to the invoice date. The commenter stated that this would result in the NRC striving to issue invoices in a timely manner to assure recovery of its budget authority and would not place the licensee in a position of having to pay an unexpected and potentially large invoice.

Response. The NRC has not included this proposal in the final rule. The NRC is required by the Federal Claims Collection Act of 1966 and the Debt Collection Act of 1982 to pursue debts and claims owed to the U.S. government. However, the NRC has made efforts to issue bills in a more timely manner. During the past year, the NRC has implemented procedures to bill for licensing reviews and inspections within 30 days of the close of the billing quarter during which the review or inspection occurred or was completed. Although there have been rare cases where bills were not issued in a timely manner for licensing and inspection activities, the NRC believes that the 30-day billing procedures will help to minimize the number of such occurrences in the future.

6. Reinstate Fee Ceiling for Topical Report Reviews

Comment. One commenter requested that the NRC reinstate a fee ceiling in 10 CFR part 170 for topical report reviews because a fee ceiling would encourage the submittal of topical reports, thus contributing to the advance of the state-of-the-art in the nuclear industry and the resultant improvement in nuclear plant safety. The commenter stated that the current uncapped fee structure encourages prolonged and unreasonably detailed technical reviews by NRC contractors.

Response. The NRC indicated in the FY 1991 final fee rule that it had decided to eliminate the ceiling for topical report reviews based on the 100 percent recovery requirement and Congressional guidance that each licensee or applicant pay the full costs of all identifiable regulatory services received from the NRC. Further, the NRC's costs for topical report reviews vary significantly depending on the particular topical report reviewed. This makes it impractical to establish an equitable fee ceiling or flat fee (56 FR 31478; July 10, 1991). Recently, the Commission revisited this issue as part of its review of fee policy required by EPA-92. The policy of assessing 10 CFR

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part 170 fees, without a ceiling, for the review and approval of topical reports was reconfirmed. For these reasons, the NRC is not establishing a fee ceiling for topical reports in this final rule.

7. Comment

Several comments were received from uranium recovery licensees. Commenters suggested (1) a tiered fee system that would result in full fees for operating facilities and reduced fees for facilities in shutdown or standby status; (2) a licensee review board be established to review NRC fees annually; (3) the NRC establish standards for its activities, such as a schedule for response intervals for processing licensing actions; and (4) 10 CFR part 170 bills be itemized to show hours spent, a description of the work performed, the names of individuals who completed the work and the dates the work was performed.

Response. In response to a petition for rulemaking from the American Mining Congress (60 FR 20918), the NRC addressed each of these comments in the Federal Register on April 28, 1995. While denying the petition, the NRC noted that it would continue its current practice of providing available backup data to support Part 170 licensing and inspection billings upon request by the licensee or applicant.

8. Establish Reimbursable Agreements With Agreement States and Other Government Agencies

Comment. Several commenters chose to comment on this change, even though the NRC indicated in the proposed rule that the issue of reimbursable agreements falls outside the scope of the proposed rulemaking. The commenters indicated that such action by NRC will affect the levels of fees to be paid by licensees. Those commenting on this change were encouraged by the NRC's initiative in seeking a better way to charge these expenses and supported the NRC's decision to increase the use of reimbursable agreements to eliminate certain costs that do not benefit NRC licensees. Most of the commenters on this issue, however, encouraged the NRC to proceed immediately to negotiate these reimbursable agreements and not wait until FY 1997 because NRC licensees are currently paying for these costs. One commenter suggested that, in the interest of properly and fairly allocating costs, this program be expanded to cover more, if not all, of the costs of the regulatory support to and oversight of Agreement States (about \$20 million) rather than limit recovery under reimbursable agreement to costs associated with training, travel and

technical support provided to Agreement States.

In addition, several commenters believe that the NRC should assess the Environmental Protection Agency (EPA) for NRC work such as review of regulations promulgated by EPA relating to radionuclide emission standards. One commenter stated that costs to support certain activities related to international treaties may best be covered by the Department of State, the Department of Energy or the Agency for International Development.

On April 5 and 6, 1995, the NRC hosted an Agreement State Managers Workshop in Rockville, Maryland. At that meeting, the Agreement States expressed strong opposition to the reimbursable agreement concept, arguing that such agreements would have a negative impact on their programs. The NRC has also received letters from Agreement States expressing strong disagreement with the reimbursable program.

Response. The NRC indicated in the proposed rule (60 FR 14672; March 20, 1995) that it planned to increase the use of reimbursable agreements with Agreement States and Federal agencies and because this change affected the budget and does not alter fee policies or methods, it falls outside the scope of this rulemaking for FY 1995. It is, however, a subject that has generated strong responses, both positive and negative, on the part of licensees and Agreement States. As indicated previously, this policy does not affect the issuance of this FY 1995 rule and the NRC is proceeding to issue the FY 1995 final rule. The reimbursable agreement issue will be addressed as a separate policy issue in the future.

With respect to the interaction between the NRC and EPA on the promulgation of regulations, the Independent Offices Appropriation Act of 1952, as amended, precludes the NRC from charging fees to Federal agencies for specific services rendered. While the NRC can assess annual fees to Federal agencies holding NRC licenses, the EPA is not considered a licensee of the NRC with respect to regulations promulgated by EPA relating to radionuclide emission standards. Further, NRC interactions with EPA are an integral part of NRC's responsibilities under the Atomic Energy Act. Therefore, NRC must include the costs of this work in its budget and cannot perform such work under reimbursable agreements.

With respect to the NRC's international activities, the NRC budget includes certain international activities that are not directly related to NRC applicants or licensees. These activities

are performed because of their benefit to U.S. national interests. The NRC is required to perform some of these activities by the Atomic Energy Act (AEA) and, therefore, must budget for them. Over the past several years, the NRC has considered various means to recover the costs for international activities involving broad U.S. national interests, but has found no viable, fair way to do so. Further, it would not be practical to assess fees to foreign organizations, foreign governments, or to the State Department to whom some of the support is provided. For example, assessment of such fees might create foreign policy tensions that could complicate U.S. goals such as foreign reactor safety and nuclear non-proliferation. Until such time as legislation is enacted allowing the NRC to exclude the cost of international activities from the fee base, the cost of these activities must continue to be recovered from NRC licensees. These costs will be recovered from the broadest base of NRC licensees as described in the response to Comment A.1.

9. Fee Deferral Policy for Standard Plant and Early Site Reviews

Comment. One commenter urged the NRC to reestablish the NRC's previous fee deferral policy for standard plant and early site reviews in order to encourage the development of standardized designs and in light of the NRC decision to issue designs to be certified through rulemaking rather than by granting a license for the certified design.

Response. The Commission decided in its FY 1991 final fee rule that the costs for standardized reactor design reviews, whether for domestic or foreign applicants, should be assessed under 10 CFR part 170 to those filing an application with the NRC for approval or certification of a standardized design (56 FR 31478; July 10, 1991). Recently, the Commission revisited this issue as part of its review of fee policy required by EPA-92 and reconfirmed its FY 1991 decision. The NRC continues to believe that the costs of these reviews should be assessed to advanced reactor applicants. The NRC finds no compelling justification for singling out these types of applications for special treatment and shifting additional costs to operating power reactors or other NRC licensees, and does not believe the points made by the commenter are sufficient to change current policy.

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10. Assessing Fees to Design Certification Applicants for Costs Following the Final Design Approval

Comment. Two commenters stated that the Commission should revisit its policy decision to charge fees to design certification applicants following the issuance by the NRC staff of a Final Design Approval (FDA).

Response. The statement of considerations accompanying the proposed rule said that the NRC would charge a vendor 10 CFR Part 170 fees for a design certification to recover all the costs of certification except the costs of any hearing that might be held under 10 CFR 52.51(b) before an Atomic Safety and Licensing Board (60 FR 14673; March 20, 1995). These charges are required by existing rules. The only reason the NRC mentioned these fees in the statement of considerations was to reflect in a widely-read document a policy that NRC had articulated fully only in letters to the vendor applicants in December 1994. The letters were in response to inquiries from three vendors last summer. The vendors, particularly ABB-Combustion Engineering Nuclear Systems (ABB-CE), had argued that all the costs of certification should be recovered through annual fees charged to the NRC's current power reactor licensees. ABB-CE, which received an FDA last year for the System 80+ and has applied for certification of the same design, wrote extensive comments on what NRC said about certification fees in the statement of considerations.²

Having considered ABB-CE's arguments, which were largely those ABB-CE had made last summer, the NRC has decided not to change the existing rules and policy on this issue. Although this whole topic is, strictly speaking, not part of this rulemaking, the NRC considers this rulemaking notice to be a useful vehicle for informing a larger public in some detail of ABB-CE's arguments and our responses. NRC's statements here are largely a repetition of arguments NRC made in the letters to the vendors and in a February 24, 1995, letter to the Senate Committee on Appropriations.

Comment. ABB-CE charges that "NRC is proposing to change its fee rules in the middle of the process to the detriment of certification applicants. * * * " (Comments at 10)

Response. Section 170.21 of the Commission's regulations has long explicitly listed standard design "certifications" among the regulatory actions for which "full cost" will be

recovered through fees charged to applicants. See 10 CFR 170.21 (1994), Schedule of Facility Fees, heading B, "Standard Reference Design Review". This policy has been the law since Part 52 was first promulgated. (See 54 FR 15372, 15399; April 18, 1989.) Even when, in the past, 10 CFR part 170 called for deferring payment of fees until a utility referenced the certified design, 10 CFR part 170 clearly said that the vendor would have to pay the "full cost of review for a standardized design approval or certification." 10 CFR 170.12(e)(2)(1) (emphasis added).

Comment. ABB-CE's most important argument for changing long-standing policy is that, according to ABB-CE, there is no benefit to ABB-CE in certification, except perhaps an "indirect" benefit of making the certified design attractive to U.S. utilities. (Comments at 4) ABB-CE says, "With the issuance of NRC's FDA in July 1994, * * * System 80+ constitutes a complete and approved standardized design which, without design certification rulemaking, has been accepted for bidding in the global marketplace." (Comments at 2) ABB-CE also argues that the nuclear utilities and their ratepayers and stockholders are the "direct" beneficiaries of certification, because it provides them with greatly reduced licensing risk, and because it contributes to the "continued viability * * * of an important energy option" and to the maintenance of the nuclear servicing-supply sector infrastructure. (Comments at 4)

Response. While the utilities may benefit from certifications, the vendor is more likely to benefit than is any given utility. The NRC knows neither whether, nor how many, applicants for combined construction permits and operating licenses (COLs) will benefit from a given certification. Certainly, not all current power reactor licensees will reference every certified design, and so current licensees will not benefit from every certification. If the design is referenced, the vendor will benefit directly, but most utilities will not. The NRC believes that had ABB-CE not had a reasonable expectation of deriving benefits from the certification, ABB-CE would not have applied for it.

Comment. ABB-CE points out that the vendor applicant does not become a "holder" of the design certification. In fact, a vendor other than the one that applied for certification can, as a matter of law, supply the certified design to a COL applicant. ABB-CE believes that this situation is incompatible with the notion that the original vendor is the primary beneficiary of the certification.

Response. The NRC agrees that the design certification applicant does not become a "holder" of the design certification. However, several things will make it difficult for a vendor other than the certification applicant to supply the design to a utility. First, proprietary information is protected during the certification proceeding (see 10 CFR 52.51(c)). Second, any vendor that supplies a design to an applicant for a COL must be prepared to provide the NRC with a large amount of design information not contained in the rule certifying the design. This information includes the detailed design of site-specific portions of the plant, and "information normally contained in certain procurement specifications and construction and installation specifications" (see 10 CFR 52.63(c)). Third, any vendor supplying a COL applicant a certified design which another vendor brought to certification must pay part of any deferred fees the original vendor owes (see 10 CFR 170.12(e)(2)(i)). Fourth and last, the original vendor's superior knowledge of the design will give that vendor a great advantage over competitors.

Comment. ABB-CE also argues that 10 CFR Part 170 fees should not be charged for a certification rulemaking because such a rulemaking is "generic." ABB-CE points out that the Commission has said that it will not charge 10 CFR part 170 fees for "generic rulemaking and guidance (e.g., 10 CFR part 52 and Regulatory Guides) for standard plants. * * * " (56 FR 31478; July 10, 1991.) " * * * NRC has used the certification," ABB-CE says, " * * * to resolve broadbased policy issues that otherwise would have required independent public rulemaking proceedings." (Comments at 7) ABB-CE goes so far as to say that "nearly all of the procedural and substantive provisions in the proposed rule for System 80+ are similar or identical to those for the ABWR." (Comments at 6)

Response. The proposed rules which would certify the System 80+ and the ABWR are no more generic than licenses certifying the same designs would have been.³ The resolutions of policy issues in the proposed rules are resolutions specific to those two designs. Moreover, the two proposed rules are quite different. It is important to understand that the few pages of the

³ It might have been difficult, if not impossible, for the System 80+ to be certified by license. Section 103d of the Atomic Energy Act says in part, "No license may be issued to an alien or any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government."

² Stone & Webster Engineering Corporation submitted brief comments on this issue. Those comments match some of ABB-CE's.

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proposed rules which appeared in the **Federal Register** are only small parts of the rules. Both will incorporate by reference "Tiers" 1 and 2 of the complete designs. Thus the proposed rules are substantively as different as the designs themselves. Even the portions published in the **Federal Register** have no legal force with respect to other designs.

The NRC did state that 10 CFR part 170 fees would not be charged for "generic rulemakings (e.g., 10 CFR part 52) on standard plants." However, as the parenthetical reference to 10 CFR part 52 shows, the NRC was using the phrase "generic rulemaking" to refer to rulemaking which, like 10 CFR part 52 itself, applies to all, or at least many, designs.

Comment. ABB-CE asserts that the whole of a design certification rulemaking should be regarded as a "contested hearing" and thus have no 10 CFR part 170 fees charged in connection with it. ABB-CE's argument is, first, that under the Administrative Procedure Act (APA), notice and comment rulemaking constitutes a "hearing", and second, that the rulemaking surely will be "contested", because there will, in all likelihood, be filed "material comments reasonably opposing aspects of the proposed rule." (Comments at 9)

Response. It has long been the policy of the NRC not to charge 10 CFR part 170 fees for "contested" hearings, namely those adjudicatory hearings which are not mandated by law. The costs of such hearings are recovered through annual fees imposed under 10 CFR part 171. The NRC agrees that applicants for design certification should not be charged 10 CFR part 170 fees for any hearings held before an Atomic Safety and Licensing Board under 10 CFR 52.51(b), which offers an opportunity for a hearing on a proposed certification.

However, ABB-CE's position that the whole rulemaking is a "contested hearing" is neither required by law nor consistent with the meaning usually attributed to the phrase "contested hearing" in discussions of NRC matters. The phrase refers to those hearings, or parts of hearings, which are held under subpart G or subpart L of 10 CFR part 2, but which would not take place unless some party outside the agency asked for them. The Supreme Court case cited by ABB-CE for the proposition that every rulemaking is a "contested hearing", *US v. Florida East Coast Railway*, 410 US 224 (1973), says only that notice and comment rulemaking will, in certain circumstances, satisfy a statute's requirement for a rulemaking

hearing. The Court's decision does not say that every rulemaking is a hearing.

Comment. ABB-CE argues that charging vendors for the costs of certification is inconsistent with the NRC's recent decision to recover the costs of confirmatory research "related to the design" from the utilities, under 10 CFR part 171. If NRC recovers those costs from the utilities, then, argues ABB-CE, NRC should recover all the costs of certification from the utilities, because those costs too are "related to the design."

Response. ABB-CE misconstrues the policy. Its aim is to charge vendors applying for FDAs and certifications of standard designs for only the research which is necessary to support the issuance of the FDA or certification. Research initiated to address generic issues, such as human factors or code development, would be charged to the utilities under 10 CFR part 171, even if it had a bearing on the review of a standard design. (See 60 FR 14673; March 20, 1995.) There is in this nothing inconsistent with the existing regulations on certification fees. In both cases, the NRC is charging the vendors for what must be done before issuance of the FDA or certification.

III. Final Action

The NRC is amending its licensing, inspection, and annual fees to recover approximately 100 percent of its FY 1995 budget authority, including the budget authority for its Office of the Inspector General, less the appropriations received from the NWF. For FY 1995, the NRC's budget authority is \$525.6 million of which approximately \$22.0 million has been appropriated from the NWF. Therefore, OBRA-90 requires that the NRC collect approximately \$503.6 million in FY 1995 through 10 CFR part 170 licensing and inspection fees and 10 CFR part 171 annual fees. This amount to be recovered for FY 1995 is about \$9.4 million less than the total amount to be recovered for FY 1994 and \$15.3 million less when compared to the amount to be recovered for FY 1993. The NRC estimates that approximately \$141.1 million will be recovered in FY 1995 from the fees assessed under 10 CFR part 170. The remaining \$362.5 million will be recovered through the 10 CFR part 171 annual fees established for FY 1995.

Recognizing that OBRA-90 may have resulted in certain fees that were unfair or inequitable, Congress in Section 2903(c), of the Energy Policy Act of 1992 (EPA-92), directed the NRC to review its annual fee policy, solicit public comment on the need for changes

to this policy, and recommend to the Congress any changes to existing law needed to prevent placing unfair burdens on NRC licensees. The NRC reviewed more than 500 public comments submitted in response to the request for comment published in the **Federal Register** on April 19, 1993 (58 FR 21116), and sent its report to Congress on February 23, 1994. A copy of this report has been placed in the Public Document Room. This report concluded that modifications to existing statutes governing NRC fees are necessary to alleviate licensees' major concerns about fairness and equity and to reduce the NRC administrative burden resulting from assessing fees. The report recommended enactment of legislation that would reduce the amount to be recovered from fees from 100 percent of the NRC budget to approximately 90 percent of the budget and eliminate the requirement that NRC assess 10 CFR part 170 fees.

In view of the fact that legislation has not been enacted to address licensees' fairness and equity concerns and the concern about the additional workload generated by 100 percent fee recovery, the Commission has reexamined its existing fee policies to determine whether they can be made more equitable. This reexamination was undertaken with the goal of addressing, within the limitations of the existing laws governing NRC fees, the concerns identified in the report to Congress and improving other features of the NRC fee program. Based on this reexamination, the NRC is amending 10 CFR parts 170 and 171 to partially alleviate the identified concerns and improve the process of collecting NRC fees.

These final changes are summarized as follows and detailed in the following sections.

1. The method for allocating the budgeted costs that cause fairness and equity concerns is changed. Approximately \$56 million of NRC costs either do not directly benefit NRC licensees or provide benefits to non-NRC licensees. These costs will be treated similar to overhead and distributed to the broadest base of NRC licensees based on the percent of the budget for each class. As a result, power reactors will pay a greater percentage of these costs.

2. The selected materials inspection fees (i.e., flat fees and others with reasonable averages), hereinafter referred to as "flat" inspection fees in 10 CFR 170.31, are eliminated and the inspection costs are included with the annual materials fees in 10 CFR 171.16(d). These actions will streamline

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the license fee process and provide more predictable fees.

3. The methodology for calculating the professional hourly rate is changed to better align the budgeted costs with the major classes of licensees. Two professional staff-hour rates are established instead of a single rate.

4. The methodology for calculating annual fees for power reactors, fuel facilities and uranium recovery licensees is changed to make annual fees more closely reflect the cost of providing regulatory services to the classes and subclasses of licensees and to improve efficiency.

5. NRC small entity and lower-tier size standards are modified for annual fee purposes.

6. The proration provision in 10 CFR 171 has been amended to allow proration of annual fees when materials licenses are downgraded during the year.

As a result of the reduced budget amount to be recovered for FY 1995, increased 10 CFR part 170 fee collections from power reactors, and these final changes, the annual fees for a large majority of the licensees have been reduced. The following provides illustrative examples of the changes in the annual fees.

Class of licensees	Annual fee	
	FY 1994	FY 1995
Power Reactors	\$3,078,000	\$2,936,000
Nonpower Reactors	62,200	56,500
High Enriched Fuel Facility ...	3,231,770	2,569,000
Low Enriched Fuel Facility ...	1,484,770	1,261,000
UF ₆ Conversion	1,179,770	639,200
Uranium Mills	74,670	60,900
Typical materials licenses		
Radiographers ..	19,170	13,900
Well Loggers	12,870	8,100
Gauge Users	2,470	1,700
Broad Scope Medical	32,570	23,200

To help stabilize fees, beginning in FY 1996, the NRC will adjust the annual fees only by the percent change in NRC's total budget. The annual fees in this final FY 1995 rule will be used as a base, and the percentage change (plus or minus) in the NRC total FY 1995 budget will be applied to all annual fees for the next four years (FY 1996–FY 1998 and FY 1999 if OBRA–90 is extended) unless there is a substantial change in the total NRC budget or the magnitude of the budget allocated to a specific class of licensees, in which case

the annual fee base would be reestablished. The decision on whether to establish a new baseline will be made each year during budget formulation. For example, if the total NRC budget is reduced by 3 percent and the number of licenses and the amount estimated to be recovered under 10 CFR part 170 remains constant in a given fiscal year, then all annual fees would be reduced by approximately 3 percent.

The NRC contemplates that any fees to be collected as a result of this final rule will be assessed on an expedited basis to ensure collection of the required fees by September 30, 1995, as stipulated in OBRA–90. Therefore, as in FYs 1991–1994 the fees will become effective 30 days after publication of the final rule in the *Federal Register*. The NRC will send a bill for the amount of the annual fee to the licensee or certificate, registration, or approval holder upon publication of the final rule. Payment will be due on the effective date of the FY 1995 rule.

The NRC will continue the proration of annual fees, established in FY 1994, in accordance with the provisions of § 171.17 for new licensees and requests for termination. The annual fees for both reactor and material licensees are prorated based on (1) The date applications are filed during the FY to terminate a license or obtain a possession-only license (POL) and (2) the date new licenses are issued during the FY.

A. Amendments to 10 CFR part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

Four amendments have been made to part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. The amendments also comply with the guidance in the Conference Committee Report on OBRA–90 that fees assessed under the Independent Offices Appropriation Act (IOAA) recover the full cost to the NRC of identifiable regulatory services each applicant or licensee receives.

First, § 170.11 is amended to conform it to section 161w. of the Atomic Energy Act of 1954, as amended (AEA). That section of the AEA currently allows the Commission to charge part 170 fees to power reactors operated by the Tennessee Valley Authority or other Federal government entities and to uranium enrichment facilities operated by the United States Enrichment Corporation, as these reactors and facilities are licensed or certified by the

NRC. In all other cases, the NRC is prevented from charging part 170 fees to Federal agencies for services rendered, due to a prohibition on such charges contained in the Independent Offices Appropriation Act, 31 U.S.C. 9701.

Second, the current method of calculating the 10 CFR part 170 professional hourly rate is revised. Currently, there is one professional hourly rate established in § 170.20, which is used to determine the fees assessed by the NRC. This professional hourly rate was \$133 per hour for FY 1994. The NRC has established two professional hourly rates for FY 1995, which will be used to determine the part 170 fees. The NRC has established a rate of \$123 per hour (\$214,765 per direct FTE) for the reactor program. This rate is applicable to those activities covered by 10 CFR 170.21 of the fee regulations. A second rate of \$116 per hour (\$203,096 per direct FTE) is established for the nuclear materials and nuclear waste program. This rate is applicable to those activities covered by 10 CFR 170.31 of the fee regulations. These rates are based on the FY 1995 direct FTEs and that portion of the FY 1995 budget that does not constitute direct program support (contractual services costs) and is not recovered through the appropriation from the NWF.

The two rates are based on cost center concepts that are now being used for NRC budgeting purposes. In implementing cost center concepts, all budgeted resources for each cost center are assigned to that center for analysis and license fee purposes to the extent they can be separately distinguished. These costs include all salaries and benefits, contract support, and travel that are required for each cost center activity. Additionally, all resources for the Advisory Committee on Reactor Safeguards (ACRS), the Advisory Committee on Nuclear Waste (ACNW), the Office of Investigation (OI), the Office of Enforcement (OE), and all program direct resources for the Office of the General Counsel (OGC) are assigned to cost centers. The NRC took a first step in this direction in FY 1994 when it directly assigned additional effort to the reactor and materials programs for OI, OE, ACRS and ACNW. Commenters supported this change in FY 1994 indicating that such assignment better defines the beneficiaries of certain regulatory activities and more equitably allocates the fees for services provided (59 FR 36897; July 20, 1994). The cost center concept is discussed more fully in

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Section IV—Section-by-Section Analysis.

Third, the current part 170 licensing and inspection fees in §§ 170.21 and 170.31 for applicants and licensees are revised to reflect both the revised hourly rates and the results of the review required by the Chief Financial Officers (CFO) Act. To comply with the requirements of the CFO Act, the NRC has evaluated historical professional staff hours used to process a licensing action (new license, renewal, and amendment) for those materials licensees whose fees are based on the average cost method (flat fees).

Based on evaluation of the historical data related to the average number of professional staff hours needed to complete materials licensing actions, the NRC has increased the fees in some categories and decreased the fees in others to reflect the costs incurred in completing the licensing actions. Thus, the revised average professional staff hours reflect the changes in the NRC licensing review program that have occurred since FY 1993. The revised licensing fees are based on the new average professional staff hours needed to process the licensing actions multiplied by the nuclear materials professional hourly rate for FY 1995 of \$116 per hour. The data for the average number of professional staff hours needed to complete licensing actions were last updated in FY 1993 (58 FR 38666; July 20, 1993). For new licenses and amendments, the licensing fees for FY 1995 are reduced in approximately 50 percent of the cases, while the fees for renewals increase in over 70 percent of the cases.

Fourth, the NRC is streamlining the fee program and improving the predictability of fees by eliminating the materials "flat" inspection fees in § 170.31 and including the cost of the inspections in 10 CFR part 171. Eliminating the 10 CFR part 170 materials "flat" fees recognizes that the "regulatory service" to licensees, referred to in OBRA-90, comprises the total regulatory activities that NRC determines are needed to regulate a class of licensees. These regulatory services include not only inspections, but also research, rulemaking, orders, enforcement actions, responses to allegations, incident investigations, and other activities necessary to regulate classes of licensees. This action does not result in any net fee increases for affected licensees and will provide those licensees with greater fee predictability, a frequent request made in licensees' comments on past fee rules. The materials annual fees, which include the cost of inspections, become

effective for FY 1995, and those materials licensees who paid a "flat" 10 CFR part 170 fee for inspections conducted in FY 1995 will receive a credit for those payments towards the FY 1995 annual fee assessed under 10 CFR part 171. Because there is no annual fee for licensees operating under reciprocity in non-Agreement States, the reciprocity inspection fee has been combined with the application fee.

In summary, the NRC is (1) establishing two 10 CFR part 170 hourly rates; (2) revising the licensing fees assessed under 10 CFR part 170 in order to comply with the CFO Act's requirement that fees be revised to reflect the cost to the agency of providing the service; and (3) eliminating the materials "flat" inspection fees in § 170.31 and including the costs of inspections with the materials annual fees in § 171.16(d), or with the reciprocity application fee in § 170.31, fee Category 16.

B. Amendments to 10 CFR Part 171: Annual Fees for Reactor Operating Licenses, and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by NRC

Ten amendments have been made to 10 CFR part 171. First, the NRC is modifying its method for recovering certain budgeted costs. The NRC's February 23, 1994, report to Congress in response to EPA-92 identified fairness and equity concerns regarding the fees charged to recover the cost of certain NRC activities. Many licensees believed it was unfair to charge them fees for activities and policies undertaken by the NRC that did not benefit them and were not requested by them. The NRC is modifying its current policies for allocating the budgeted costs for these and other activities that cause fairness and equity concerns, including international activities, the nonprofit educational exemption, the 10 CFR part 170 statutory exemption for Federal agencies, the small entity annual fee reduction resulting from implementing the Regulatory Flexibility Act, certain Site Decommissioning Management Program (SDMP), generic decommissioning and reclamation activities, and regulatory activities that support both NRC and Agreement State licensees. The budgeted costs of approximately \$56 million for these activities have been allocated to the broadest base of NRC licensees because the activities are necessary for the NRC to carry out its responsibilities but, in most instances, go beyond the

regulation of those licensees or applicants that pay fees. Thus, the NRC is allocating the approximately \$56 million in fees for activities that raise fairness and equity concerns to the broadest base of NRC licensees, based on the budgeted dollars for the class of licensees. By allocating the costs in this way, the entire population of NRC licensees pay the costs. The allocation is based on the amount of the budget directly attributable to a class of licensees. This results in operating power reactors paying approximately 89 percent of the costs of the activities in question with other classes of licensees paying their respective share of these costs as follows: 3 percent to fuel facilities, 5 percent to materials licensees, and 1 percent to each of the spent fuel, uranium recovery and transportation classes of licensees.

Second, 10 CFR 171.13 is amended to provide that the NRC will publish the proposed rule in the *Federal Register* as early as is practicable but no later than the third quarter of the fiscal year. Currently, the regulations provide for issuance of the proposed rule during the first quarter of the fiscal year.

Third, §§ 171.15 and 171.16 are amended to revise the annual fees for FY 1995 to recover approximately 100 percent of the FY 1995 budget authority, less fees collected under 10 CFR part 170 and funds appropriated from the NWF.

Fourth, the annual fees for operating power reactors in § 171.15(d) are revised to reflect a single uniform annual fee. The NRC is streamlining the fee program by assessing one uniform annual fee for all operating power reactors.

Fifth, as discussed earlier, the annual fees for materials licenses in § 171.16(d) include the budgeted costs for certain materials inspections which were previously recovered under 10 CFR 170.31.

Sixth, the NRC is refining the method for calculating the annual fees for fuel facilities and uranium recovery facilities. The NRC indicated in its final FY 1994 fee rule that given the questions raised at that time by B&W Fuel Company, General Atomics, and other fuel facilities, it would reexamine the fuel facility subclass categorizations, and include any restructuring resulting from this reexamination in the FY 1995 proposed rule for notice and comment (59 FR 36901; July 20, 1994). The NRC's revised methodologies for determining annual fees for fuel facility and uranium recovery licensees, described in the proposed rule, are based on this reexamination. These revised methodologies have been used to

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determine the FY 1995 annual fees for both fuel facility and uranium recovery licensees. The use of the revised methodologies results in an annual fee that more accurately reflects the cost of providing regulatory services to each fuel facility and uranium recovery licensee. The revised methodologies are explained in more detail in Section IV—Section-by-Section Analysis.

Seventh, the NRC is modifying the lower-tier size standard for those licensees that qualify as a small entity under the NRC's size standards. On April 7, 1994 (59 FR 16513), the Small Business Administration (SBA) issued a final rule changing its size standards. The SBA adjusted its receipts-based size standard levels to mitigate the effects of inflation from 1984 to 1994. On April 11, 1995 (60 FR 18344), the NRC published a final rule amending the NRC's size standards. The NRC adjusted its receipts-based size standards from \$3.5 million to \$5 million to accommodate inflation and to conform to the SBA final rule. The NRC also eliminated the separate \$1 million size standard for private practice physicians and applied the receipts-based size standard of \$5 million to this class of licensees. This mirrors the revised SBA standard of \$5 million for medical practitioners. The NRC also established a size standard of 500 or fewer employees for business concerns that are manufacturing entities. This standard is the most commonly used SBA employee standard and applies to the types of manufacturing industries that hold an NRC license.

The NRC has used the revised standards in the final FY 1995 fee rule. The small entity fee categories in § 171.16(c) of this final fee rule have been modified to reflect the changes in the NRC's size standards. The existing maximum small entity annual fee of \$1800 is continued for all small entities except those defined as lower-tier small entities in this rule. The existing lower-tier small entity fee of \$400 will be assessed for those manufacturing industries and educational institutions not State or publicly supported with less than 35 employees, small governmental jurisdictions with a population of less than 20,000, and non-manufacturing entities with gross receipts of less than \$350,000, a higher threshold than the current lower-tier level of \$250,000 in gross receipts.

Eighth, Footnote 1 of 10 CFR 171.16(d) is amended to provide for a waiver of the FY 1995 annual fees for those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for

possession only/storage licenses prior to October 1, 1994, and permanently ceased licensed activities entirely by September 30, 1994. All other licensees and approval holders who held a license or approval on October 1, 1994, are subject to FY 1995 annual fees. This change is in recognition of the fact that since the final FY 1994 rule was published in July 1994, licensees have continued to file requests for termination of their licenses or certificates with the NRC. Other licensees have either called or written to the NRC since the FY 1994 final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible. However, the NRC was unable to respond and take action on all of the requests before the end of the fiscal year on September 30, 1994. Similar situations existed after the FY 1991, FY 1992, and FY 1993 rules were published, and in those cases, NRC provided an exemption from the requirement that the annual fee is waived only when a license is terminated before October 1 of each fiscal year.

Ninth, § 171.17 is amended to add a proration provision for materials licenses that are downgraded during the year to a lower fee category. This provision would permit those materials licensees who filed applications to downgrade their licenses to a lower fee category during the period October 1 through March 31 of a fiscal year to pay reduced annual fees.

Tenth, § 171.19 is amended to credit the quarterly partial annual fee payments and "flat" inspection fee payments for FY 1995 inspections already made by certain licensees in FY 1995 either toward their total annual fee to be assessed or to make refunds, if necessary.

The amounts to be collected through annual fees in the amendments to 10 CFR part 171 are based on the two revised professional hourly rates discussed previously in the summary of the changes to 10 CFR part 170. The amendments to 10 CFR part 171 do not change the underlying basis for 10 CFR part 171; that is, charging a class of licensees for NRC costs attributable to that class of licensees. The changes are consistent with the Congressional guidance in the Conference Committee Report on OBRA-90, which states that the "conferees contemplate that the NRC will continue to allocate generic costs that are attributable to a given class of licensees to such class" and the "conferees intend that the NRC assess the annual charge under the principle

that licensees who require the greatest expenditures of the agency's resources should pay the greatest annual fee" (136 Cong. Rec. at H12692-93). For those NRC costs not attributable to a class of licensees, the amendments to 10 CFR part 171 follow the conferees' guidance which states that "the Commission should assess the charges for these costs as broadly as practicable in order to minimize the burden for these costs on any licensee or class of licensees * * *" (136 Cong. Rec. at H12692-3).

C. FY 1995 Budgeted Costs

The FY 1995 budgeted costs, by major activity, that will be recovered through 10 CFR parts 170 and 171 fees are shown in Table I.

TABLE I.—RECOVERY OF NRC'S FY 1995 BUDGET AUTHORITY
(Dollars in millions)

Recovery method	Estimated amount
Nuclear waste fund	\$22.0
Part 170 (license and inspection fees)	141.1
Other receipts .....	.1
Part 171 (annual fees):	
Power Reactors	262.2
Nonpower Reactors .....	.3
Fuel Facilities	10.1
Spent Fuel Storage	1.6
Uranium Recovery	1.8
Transportation	4.2
Material Users	124.7
Rare Earth Facilities .....	.1
Subtotal Part 171	\$305.0
Costs remaining to be recovered not identified above	57.4
Total	\$525.6

¹ Includes \$5.8 million that will not be recovered from small materials licensees because of the reduced small entity fees.

In addition to the \$57.4 million remaining to be recovered in Table I, approximately \$5.8 million must be collected as a result of continuing the \$1,800 maximum fee for small entities and the lower-tier small entity fee of \$400 for certain licensees. The composition of the \$63.2 million is as follows:

TABLE II.—ACTIVITIES TO BE RECOVERED THROUGH ASSESSMENT OF A SURCHARGE

Activities	Dollars in millions
Federal Agency Exemption	\$1.6
Nonprofit Educational Exemption	6.1
International Activities	10.5
Small Entity Subsidy	5.8

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TABLE II.—ACTIVITIES TO BE RECOVERED THROUGH ASSESSMENT OF A SURCHARGE—Continued

Activities	Dollars in millions
Agreement State Oversight	6.2
Regulatory Support to Agreement States	14.2
Site Decommissioning Management Plan	6.2
Generic Decommissioning and Reclamation	5.6
Generic Low Level Waste (LLW)	7.0
Total	\$63.2

The NRC is continuing the existing policy for recovering the \$7 million for generic LLW activities from licensees that generate significant LLW. The revised method of allocation, described in detail in the FY 1993 final rule (58 FR 38669; July 20, 1994) allocates the LLW costs between two groups: large generators (power reactors and large fuel facilities) and small generators (all other LLW-producing licensees). The remaining \$56.2 million is distributed to virtually all classes of licensees based on the percentage of the total budget directly allocated to each class. The resulting allocations of the \$63.2 million are as follows:

\$55.2 million to operating power reactors;
 \$2.2 million to fuel facilities;
 \$6 million to spent fuel storage licensees;
 \$6 million to transportation licensees;
 \$6 million to uranium recovery facilities; and
 \$4.0 million to other materials licensees.

IV. Section-by-Section Analysis

The following analysis of those sections that are amended by this final rule provides additional explanatory information. All references are to Title 10, Chapter I, U.S. Code of Federal Regulations.

Part 170

Section 170.11 Exemptions

This section is amended to conform the fee regulations to section 161 w. of the Atomic Energy Act of 1954, as amended (AEA). That section of the AEA currently allows the Commission to charge part 170 fees to power reactors operated by the Tennessee Valley Authority or other Federal government entities and to uranium enrichment facilities operated by the United States Enrichment Corporation (USEC), as these reactors and facilities are licensed or certified by the NRC. The NRC has been assessing the USEC 10 CFR part

170 fees under the authority provided in section 161w. of the AEA. In this final rule, the NRC is now amending § 170.11 to conform its regulations to this statutory provision. In all other cases, the NRC is prevented from charging 10 CFR part 170 fees to Federal agencies for services rendered, due to a prohibition on such charges contained in the Independent Offices Appropriation Act, 31 U.S.C. 9701.

Section 170.20 Average Cost Per Professional Staff Hour

This section is amended to establish two professional staff-hour rates based on FY 1995 budgeted costs—one for the reactor program and one for the nuclear material and nuclear waste program. Accordingly, the NRC reactor professional staff-hour rate for FY 1995 for all activities that are based on full cost under § 170.21 is \$123 per hour, or \$214,765 per direct FTE. The NRC nuclear material and nuclear waste professional staff-hour rate for all materials activities that are based on full cost under § 170.31 is \$116 per hour, or \$203,096 per direct FTE. The rates are based on the FY 1995 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF. The NRC has used cost center concepts in reallocating certain costs to the reactor and materials programs in order to more closely align the budgeted costs with specific classes of licensees. The method used to determine the two professional hourly rates is as follows:

1. The direct program FTE levels are identified for both the reactor program and the nuclear material and waste program.

2. Direct contract support, which is the use of contract or other services in support of the line organization's direct program, is excluded from the calculation of the hourly rate because these support costs are charged directly through the various categories of fees.

3. All other direct program costs (i.e., Salaries and Benefits, Travel) represent "in-house" costs and are to be collected by dividing them uniformly by the total number of direct FTEs for the program. In addition, Salary and Benefits plus contracts for General and Administrative Support are allocated to each program based on that program's salary and benefits. This method results in the following costs, to be included in the hourly rates.

TABLE III.—FY 1995 BUDGET AUTHORITY TO BE INCLUDED IN HOURLY RATES

[Dollars in millions]

Salary and benefits	Reactor program	Materials program
Program	\$148.5	\$43.5
Allocated Agency Management and Support	39.9	11.7
Subtotal	188.4	55.2
General and Administrative Support (G&A):		
Program Travel and Other Support	13.3	2.7
Allocated Agency Management and Support	73.6	21.6
Subtotal	86.9	24.3
Less offsetting receipts .....	.1	.....
Total Budget Included in Hourly Rate	275.2	79.5
Program Direct FTEs	1,281.6	391.6
Rate per Direct FTE	214,765	203,096
Professional Hourly Rate	123	116

Dividing the \$275.2 million budget for the reactor program by the number of reactor program direct FTEs (1281.6) results in a rate for the reactor program of \$214,765 per FTE for FY 1995. Dividing the \$79.5 million budget for the nuclear materials and nuclear waste program by the number of program direct FTEs (391.6) results in a rate of \$203,096 per FTE for FY 1995. The Direct FTE Hourly Rate for the reactor program is \$123 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing the cost per direct FTEs (\$214,765) by the number of productive hours in one year (1744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities." The Direct FTE Hourly Rate for the materials program is \$116 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing the cost per direct FTEs (\$203,096) by the number of productive hours in one year (1744 hours). The two professional rates of \$123 per hour and \$116 per hour are lower than the FY 1994 rate of \$133 per hour because the budget has been reduced and cost center concepts have been implemented with the effect that more direct FTEs have been charged to the programs.

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Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections and Import and Export Licenses

The licensing and inspection fees in this section, which are based on full-cost recovery, are revised to reflect the FY 1995 budgeted costs and to recover costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate, as shown in § 170.20, for the reactor program and any direct program support (contractual services) costs expended by the NRC. Any professional hours expended on or after the effective date of this final rule will be assessed at the FY 1995 hourly rate for the reactor program as shown in § 170.20. Although the average amounts of time to review import and export licensing applications have not changed, the fees in § 170.21, facility Category K, have decreased from FY 1994 as a result of the decrease in the hourly rate.

For those applications currently on file and pending completion, footnote 2 of § 170.21 is revised to provide that the professional hours expended up to the effective date of the final rule will be assessed at the professional rates in effect at the time the service was rendered. For topical report applications currently on file which are still pending completion of the review and for which review costs have reached the applicable fee ceiling established by the July 2, 1990 rule, the costs incurred after any applicable ceiling was reached through August 8, 1991, will not be billed to the applicant. Any professional hours expended for the review of topical report applications, amendments, revisions, or supplements to a topical report on or after August 9, 1991, are assessed at the applicable rate established by § 170.20.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, Including Inspections and Import and Export Licenses

The licensing and inspection fees in this section, which are based on full-cost recovery, are modified to recover the FY 1995 costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule will be based on both the professional hourly rate as shown in § 170.20 for the materials program and any direct program support (contractual services) costs expended by

the NRC. Those licensing fees, which are based on the average time to review an application ("flat" fees), are adjusted to reflect both the revised average professional staff hours needed to process a licensing action (new license, renewal, and amendment) and the decrease in the professional hourly rate from \$133 per hour in FY 1994 to \$116 per hour in FY 1995. The "flat" materials inspection fees in § 170.31 are eliminated and combined with the materials annual fees in § 171.16(d). Because there is no annual fee for licensees operating under reciprocity in non-Agreement States, the application fee includes the costs of inspections.

As previously indicated, the CFO Act requires that the NRC conduct a review, on a biennial basis, of fees and other charges imposed by the agency for its services and revise those charges to reflect the costs incurred in providing the services. Consistent with the CFO Act requirement, the NRC has completed its most recent review of license and inspection fees assessed by the agency. The review focused on the flat fees that are charged to nuclear materials users for licensing actions (new licenses, renewals, and amendments). The full cost license and inspection fees (e.g., for fuel facilities) and annual fees were not included in this biennial review because the hourly rate for full cost fees and the annual fees are reviewed and updated annually in order to recover 100 percent of the NRC budget authority.

To determine the licensing flat fees for materials licensees and applicants, the NRC uses historical data to determine the average number of professional hours required to perform a licensing action for each license category. These average hours are multiplied by the revised materials program professional hourly rate of \$116 per hour for FY 1995. Because the professional hourly rate is updated annually and the NRC is eliminating materials "flat" inspection fees, the FY 1995 biennial review examined only the average number of hours per licensing action with regard to the 10 CFR Part 170 fees. The review indicated that the NRC needed to modify the average number of hours on which the current licensing flat fees are based in order to recover the cost of providing licensing services. The average number of hours required for licensing actions was last reviewed and modified in 1993 (58 FR 38666; July 20, 1993). Thus the revised hours used to determine the fees for FY 1995 reflect the changes in the licensing program that have occurred since that time. For example, new initiatives underway for certain types of licenses

and management guidance that reviewers conduct more detailed reviews of certain renewal applications based on historical enforcement actions in order to insure public health and safety have been incorporated into the revised fees. For new licenses and amendments, the licensing fees for FY 1995 are reduced in approximately 50 percent of the cases, while the fees for renewals have increased in over 70 percent of the cases.

The amounts of the licensing flat fees were rounded by applying standard rules of arithmetic so that the amounts rounded would be de minimis and convenient to the user. Fees that are greater than \$1,000 are rounded to the nearest \$100. Fees under \$1,000 are rounded to the nearest \$10.

The licensing flat fees are applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D, 10.B, 15A through 15E and 16. Applications filed on or after the effective date of the final rule are subject to the revised fees in this final rule. Although the average amounts of time to review import and export licensing applications have not changed, the fees in Category 15 have decreased from FY 1994 as a result of the decrease in the hourly rate.

For those licensing, inspection, and review fees assessed that are based on full-cost recovery (cost for professional staff hours plus any contractual services), the materials program hourly rate of \$116, as shown in § 170.20, applies to those professional staff hours expended on or after the effective date of the final rule.

Part 171

Section 171.13 Notice

The language in this section is revised to reflect more accurately when the NRC expects to publish its annual proposed fee rules. The NRC's experience indicates that the agency has been unable to publish the proposed rule during the first quarter of the fiscal year as indicated in the current FY 1994 rule. Therefore, this section is revised to indicate that the NRC will publish the proposed rule in the *Federal Register* as early as is practicable but no later than the third quarter of the fiscal year.

Section 171.15 Annual Fee: Reactor Operating Licenses

The annual fees in this section are revised to reflect FY 1995 budgeted costs. Paragraphs (a), (b)(3), (c)(1), (c)(2), (d), and (e) are revised to comply with the requirement of OBRA-90 to recover approximately 100 percent of the NRC budget for FY 1995. Table IV shows the

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budgeted costs that are allocated directly to operating power reactors as part of the base annual fee. They have been expressed in terms of the NRC's FY 1995 programs and cost centers. The resulting total base annual fee amount for power reactors is shown, as well as the one uniform base annual fee that will be assessed to all operating reactors.

The NRC is streamlining the fee program by assessing one uniform base annual fee for all operating power reactors. During the past four years, the NRC has followed a somewhat lengthy and time consuming process in calculating the amount of the power reactor annual fees. The annual fees were determined in three ways. First, within the operating power reactor class, a distinction was made between the four vendor groups, that is, Babcock & Wilcox, Combustion Engineering, General Electric and Westinghouse. Second, within each vendor group, a distinction was made using the type of containment, for example, General

Electric Mark I, II or III. Third, a distinction was made based on the location of the reactor: whether or not it is located east or west of the Rocky Mountains. The NRC indicated in the FY 1991 rule (56 FR 31479; July 10, 1991) and again in its request for public comment on NRC fee policy (58 FR 21119; April 19, 1993) that it would be reexamining this approach with a view toward simplifying the method for determining annual fees and streamlining the fee process without causing an unfair burden. The NRC Office of the Inspector General (OIG), in its report dated October 26, 1993, on license fees, described the fee process as very detailed and labor intensive and stated that substantial effort is expended in attempting to make the process equitable and the costs reasonable. The OIG stated that the determination of the Part 171 fees could be simplified by eliminating and streamlining much of the detailed analyses performed as part of the process. This detailed breakdown of the reactor annual fees was

implemented when there were significant differences in the NRC research funding for the various types of reactors. This is no longer the case. For example, in FY 1991, the difference between the highest and lowest power reactor annual fee was \$229,000 and in FY 1993 the difference was \$96,000. The NRC, for FY 1995, calculated the reactor annual fees using both the current method (different fees for different types of reactors) and the uniform method. The uniform annual fee of \$2,936,000 is \$23,000 higher than the lowest fee under the current method, which is less than 1 percent of the \$2.9 million annual fee for an operating power reactor and \$11,000 lower than the highest fee under the current method. Because of this extremely small difference, the NRC is establishing a single uniform annual fee for each operating power reactor. Not only will this not cause an unfair burden, but it will allow the NRC to streamline the fee program and simplify the fee process.

TABLE IV.—ALLOCATION OF NRC FY 1995 BUDGET TO POWER REACTORS' BASE FEES¹

	Program total		Allocated to power reactors	
	Program support (\$,K)	Direct FTE	Program support (\$,K)	Direct FTE
Reactor Program				
Cost Center: Reactor Regulation:				
Inspections	\$4,350	471.4	\$4,350	471.4
Reactor Oversight	11,615	357.0	11,615	357.0
Reactor and Site Licensing	1,660	26.3	1,660	26.3
Reactor Aging and Renewal	19,973	54.7	19,973	54.7
Safety Assessment and Regulatory Development	33,687	69.5	33,687	69.5
Independent Analysis of Operational Experience	7,939	47.0	7,939	47.0
Technical Training and Qualification	4,728	19.0	4,728	19.0
Investigations, Enforcement and Legal Advice	11	59.0	11	59.0
Independent Review	536	42.0	536	42.0
Cost Center Total			\$84,499	1,145.9
Cost Center: Standard Reactor Designs:				
Design Certification	\$6,873	91.6	\$6,873	91.6
Safety Assessment	14,885	19.7	14,885	19.7
Legal Advice		3.0		3.0
Independent Review	86	10.0	86	10.0
Cost Center Total			\$21,844	124.3
Nuclear Materials and Nuclear Waste Program				
Cost Center: Fuel Facilities:				
Licensing and Inspection	1,304	28.5		.1
Cost Center: LLW and Decommissioning:				
Licensing and Inspection	50	2.6		.9
Reactor Decommissioning	100	6.7	100	6.7
Radiological Surveys	1,653		331	
Cost Center Total			\$431	7.6
Management and Support Programs				
Cost Center: Special Technical Programs:				
Educational Grants	\$1,050		\$1,050	
Small Business Innovation Research	1,844		1,844	

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TABLE IV.—ALLOCATION OF NRC FY 1995 BUDGET TO POWER REACTORS' BASE FEES¹—Continued

	Program total		Allocated to power reactors	
	Program support (\$,K)	Direct FTE	Program support (\$,K)	Direct FTE
Nuclear Materials Mgt. and Safeguards System	1,165	1.0	850	.7
Cost Center Total			\$3,744	.7
Reactor Program Total			\$110,518	1,278.6
Total base fee amount allocated to power reactors				² \$385.0 million
Less estimated part 170 power reactor fees				\$122.9 million
Part 171 amount for operating power reactors				\$262.1 million
Part 171 base fee for each operating reactor				\$262.1 million
				108 reactors = \$2,427,000 per reactor

¹ Base annual fees include all costs attributable to the operating power reactor class of licensees. The base fees do not include costs allocated to power reactors for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE (\$214,765) and adding the program support funds.

Paragraph (b)(3) is revised to establish the base uniform annual fee for each operating power reactor and to change the fiscal year references from FY 1994 to FY 1995.

Paragraphs (c)(1) and (c)(2) are amended to show the amount of the

budget allocated for policy reasons (surcharge) to operating reactors for FY 1995. This surcharge is added to the base annual fee for each operating power reactor. The purpose of this surcharge is to recover those NRC budgeted costs that are not directly or

solely attributable to operating power reactors but nevertheless must be recovered to comply with the requirements of OBRA-90.

The FY 1995 budgeted costs that are to be recovered in the surcharge from all licensees are as follows:

TABLE V

[In millions of dollars]

Category of costs	FY 1995 budgeted costs (\$ in millions)
1. Activities not attributable to an existing NRC licensee or class of licensee:	
a. International cooperative safety program and international safeguards activities	10.5
b. Agreement State oversight	6.2
c. Low-level waste disposal generic activities; and	7.0
d. Site decommissioning management plan activities not recoverable under 10 CFR Part 170	5.6
2. Activities not assessed Part 170 licensing and inspection fees or Part 171 annual fees based on existing law or Commission policy:	
a. Fee Exemption of nonprofit educational institutions;	6.1
b. Licensing and inspection activities associated with other Federal agencies;	1.6
c. Costs not recovered from Part 171 for small entities	5.8
3. Activities supporting NRC operating licensees and Others.	
a. Regulatory support to Agreement States	14.2
b. Decommissioning-Reclamation	6.2
Total budgeted costs	63.2

Excluding low-level waste costs totalling \$7 million, the current policy allocates the remaining \$56.2 million based on three different methods. First, 100 percent of costs for certain activities (e.g., international activities and the nonprofit educational institution exemption) are allocated to operating power reactors, based on the guidance in the Conference Committee report accompanying OBRA-90 which stated that these types of costs may be recovered from such licensees as the Commission determines can fairly,

equitably and practicably contribute to their payment. The second method prorates the costs of some activities (e.g., small entity subsidy and Agreement State oversight) to all licensees under the implicit assumption that no one class of licensees should have to bear the full cost. Under the third method, 100 percent of the costs of some activities (e.g., SDMP and regulatory support to Agreement States) are allocated to the class of licensees to which the activities relate, independent of whether the activities are needed for

current licensees/applicants or support non-NRC licensees. In addition to being based on three different principles, the current policy creates significant annual fee problems for classes of licensees with a small or declining number of licensees. For example, as more states become Agreement States, the relatively fixed costs for generic regulatory activities (e.g., rulemaking, research, evaluation of operational data and policy development) that support both NRC and Agreement State licensees will be allocated to a smaller number of

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materials licensees, causing the NRC materials licensees' annual fees to increase substantially. For example, if the four States who have expressed interest in becoming Agreement States do so within the next few years, then the remaining NRC materials licensees' annual fees would increase by about 30 percent from current levels.

Therefore, the NRC is changing the current policy for allocating the costs for activities which have raised fairness and equity concerns among many NRC licensees. The changes are based on the premise that these costs should be borne by all NRC licensees, because while the activities are necessary for the NRC to carry out its responsibilities, in most instances, they go beyond the regulation of those licensees or applicants that pay fees. Thus, the NRC has allocated the costs in question to the broadest base of NRC licensees that pay annual fees. The

allocation is based on the amount of the budget directly attributable to a class of licensees and results in, for instance, operating power reactors paying 89 percent of the cost of these activities, compared to approximately 50 percent of these costs in the FY 1994 rule.

This change is consistent with the guidance in the Conference Committee Report that accompanied OBRA-90. First, by allocating these costs to the broadest base of NRC licensees, this change is consistent with the Conference Report guidance that: "The Commission should assess the charge for these activities as broadly as practicable in order to minimize the burden for these costs on any licensee or class of licensees so as to establish as fair and equitable a system as is feasible." Second, allocating a higher percentage of these costs to operating power reactors as opposed to other

classes of licensees is also consistent with the Conference Report guidance that: "These expenses may be recovered from such licensees as the Commission, in its discretion, determines can fairly, equitable and practicably contribute to their payment." Allocating these costs to the universe of NRC licenses will minimize the impact of the declining numbers of licenses in any specific class, because the costs will be allocated over the maximum number of licensees. It will also put in place both a policy that will help mitigate future fee concerns associated with declining number of licenses, and a single methodology for allocating these types of costs, something that has been requested in comments submitted on previous proposed fee rules.

The annual additional charge for each operating power reactor is determined as follows:

Generic LLW Cost Allocated	= .74 × \$6,972K	= \$5,159K
Other Activities Allocated	= .89 × \$56,229K	= \$50,044K
Subtotal Budgeted Costs		\$55,203K
Less Amount to be Assessed		
to Small Older Reactors		- 206K
Total Budgeted Costs		\$54,997K
<hr/>		
Total budgeted costs allocated	= \$54,997K	
Total number of operating reactors	108	
		= \$509,000 per operating power reactor

With respect to Big Rock Point, a smaller older reactor, the NRC hereby grants a partial exemption from the FY 1995 annual fees similar to FY 1994 based on a request filed with the NRC in accordance with § 171.11. The total amount of \$0.2 million to be paid by Big Rock Point has been subtracted from the total amount assessed operating reactors as a surcharge.

Based on the information in Tables IV and V, each operating power reactor, except Big Rock Point, will pay a base annual fee of \$2,427,000 and an additional charge of \$509,000 for a total FY 1995 annual fee of \$2,936,000. The annual fee in this final rule is less than the annual fee shown in the proposed rule because of higher estimated collections anticipated in FY 1995 from 10 CFR Part 170 fees.

Paragraph (d) is revised to show the amount of the total FY 1995 uniform annual fee, including the surcharge, to be assessed to each operating power reactor.

Paragraph (e) is revised to show the amount of the FY 1995 annual fee for

nonpower (test and research) reactors. In FY 1995, \$339,000 in costs are attributable to those commercial and non-exempt Federal government organizations that are licensed to operate test and research reactors. Applying these costs uniformly to those nonpower reactors subject to fees results in an annual fee of \$56,500 per operating license. The Energy Policy Act of 1992 established an exemption for certain Federally-owned research reactors that are used primarily for educational training and academic research purposes, where the design of the reactor satisfies certain technical specifications set forth in the legislation. Consistent with this legislative requirement, the NRC granted an exemption from annual fees for FY 1992 and FY 1993 to the Veterans Administration Medical Center in Omaha, Nebraska, the U.S. Geological Survey for its reactor in Denver, Colorado, and the Armed Forces Radiobiological Institute in Bethesda, Maryland, for its research reactor. This

exemption was initially codified in the July 20, 1993 (58 FR 38695) final fee rule at § 171.11(a) and more recently in the March 17, 1994 (59 FR 12543) final rule at § 171.11(a)(2). The NRC amended § 171.11(a)(2) on July 20, 1994 (59 FR 36895) to exempt from annual fees the research reactor owned by the Rhode Island Atomic Energy Commission. The NRC will continue to grant exemptions from the annual fee to those Federally-owned and State owned research and test reactors who meet the exemption criteria specified in § 171.11.

Section 171.16 Annual fees: Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government Agencies Licensed by the NRC

Section 171.16(c) covers the fees assessed for those licensees that can qualify as small entities under NRC size standards. On April 7, 1994 (59 FR 16513), the Small Business Administration (SBA) issued a final rule

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changing its size standards. The SBA adjusted its receipts-based size standard levels to mitigate the effects of inflation from 1984 to 1994. On April 11, 1995 (60 FR 18344), the NRC published a final rule amending its size standards. The size standards are as follows:

(a) A small business is a for-profit concern and is a—

(1) Concern that provides a service or a concern not engaged in manufacturing with average gross receipts of \$5 million or less over its last three completed fiscal years; or

(2) Manufacturing concern with an average number of 500 or fewer employees based upon employment during each pay period for the preceding 12 calendar months.

(b) A small organization is a not-for-profit organization which is independently owned and operated and has annual gross receipts of \$5 million or less.

(c) A small governmental jurisdiction is a government of a city, county, town, township, village, school district, or special district with a population of less than 50,000.

(d) A small educational institution is one that is—

(1) Supported by a qualifying small governmental jurisdiction; or

(2) Not state or publicly supported and has 500 or fewer employees.

(e) For purposes of this section, the NRC shall use the Small Business Administration definition of receipts. (13 CFR 402(b)(2)). A licensee who is a subsidiary of a large entity does not qualify as a small entity for purposes of this section.

Therefore, the small entity categories in § 171.16(c) of this final fee rule have been modified to reflect the changes in the NRC's size standards. Consistent with the establishment of an employee size standard for manufacturers, the NRC is establishing a new maximum small entity fee for manufacturing industries with 35 to 500 employees at \$1,800 and a lower-tier small entity fee of \$400 is established for those manufacturing industries and educational institutions not State or publicly supported with less than 35 employees. The lower-tier receipts-based threshold of \$250,000 is raised to \$350,000 to reflect approximately the same percentage adjustment as that made by the SBA when they adjusted

the receipts-based standard from \$3.5 million to \$5 million.

Section 171.16(d) is revised to reflect the FY 1995 budgeted costs for materials licensees, including Government agencies, licensed by the NRC. These fees are necessary to recover the FY 1995 generic and other regulatory costs totalling \$42.5 million that apply to fuel facilities, uranium recovery facilities, rare earth facilities, spent fuel facilities, holders of transportation certificates and QA program approvals, and other materials licensees, including holders of sealed source and device registrations.

Tables VI and VII show the NRC programs, cost centers, and resources that are attributable to fuel facilities and materials users, respectively. The costs attributable to the uranium recovery and rare earth classes of licensees are those associated with uranium recovery and rare earth licensing, inspection, and generic activities. For transportation, the costs are those budgeted for transportation licensing, inspection, and generic activities. Similarly, the budgeted costs for spent fuel storage are those for spent fuel storage licensing, inspection and generic activities.

TABLE VI.—ALLOCATION OF NRC FY 1995 BUDGET TO FUEL FACILITY BASE FEES¹

	Total program element		Allocated to fuel facility	
	Program support \$,K	FTE	Program support \$,K	FTE
Cost Center: Fuel Facilities:				
Fuel Fabricators Oversight and Inspections	\$1,698	59.0	\$1,486	56.1
Cost Center: LLW and Decommissioning:				
Decommissioning	4,447	50.0	325	1.7
Cost Center: Other Nuclear Materials and Waste:				
Independent Analysis of Operating Experience	346	8.0	69	1.6
Technical Training and Qualification	692	2.0	138	.4
Adjudicatory Reviews	-	1.0	-	.5
Investigations, Enforcement, Legal Advice	11	39.0	1	1.6
Cost Center: Special Technical Program:				
Nuclear Materials Mgt. and Safeguards System	1,165	1.0	47	-
Total			\$2,066	61.9
Total Base Fee Amount Allocated to Fuel Facilities				² \$14.6 million
Less Part 170 Fuel Facility Fees				4.5 million
Part 171 Base Fees for Fuel Facilities				\$10.1 million

¹ Base annual fee includes all costs attributable to the fuel facility class of licensees. The base fee does not include costs allocated to fuel facilities for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE (\$203,096) and adding the program support funds.

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TABLE VII.—ALLOCATION OF FY 1995 BUDGET TO MATERIAL USERS' BASE FEES¹

	Total program element		Allocated to materials users	
	Program support \$,K	FTE	Program support \$,K	FTE
Nuclear Materials & Nuclear Waste Program				
Cost Center: Materials Users:				
Licensing/Inspection of Materials Users	2,436	113.0	721	82.3
Materials Licensee Performance	700	1.8	189	.5
Materials Regulatory Standards	1,494	12.8	403	3.5
Radiation Protection Health Effects	1,621	5.3	438	1.4
Cost Center Total			1,751	87.7
Cost Center: LLW & Decommissioning:				
Licensing & Inspections	50	2.6		.2
Decommissioning	214	32.8	69	3.5
Radiological Surveys	1,653		372	
Cost Center Total			441	3.7
Cost Center: Other Nuclear Materials:				
Analysis of Operational Experience	346	8.0	184	1.7
Technical Training	692	2.0	498	1.4
Adjudicatory Reviews		1.0		.5
Investigations/Enforcement	11	39.0	9	24.4
Event Evaluation		16.0		4.4
Cost Center Total			691	32.4
Total Program			2,883	123.8
Management & Support Program				
Cost Center: Special Technical Programs:				
Nuclear Material Management & Safeguard Systems	1,165	1.0	74	.1
Total All Programs			2,957	123.9
Base Amount Allocated to Materials Users				28.1 million
Less Part 170 Materials Users Fees				3.4 million
Part 171 Base Fees For Materials Users				24.7 million

¹ Base annual fee includes all costs attributable to the materials class of licensees. The base fee does not include costs allocated to materials licensees for policy reasons.

² Amount is obtained by multiplying the direct FTE times the rate per FTE (\$203,096) and adding the program support funds.

Major Fuel Facilities

The allocation of the NRC's \$10.1 million in budgeted costs to the individual fuel facilities is based on the revised methodologies indicated earlier. The NRC indicated in its final FY 1994 fee rule that given the questions raised at that time by B&W Fuel Company, General Atomics, and other fuel facilities it would reexamine the fuel facility subclass categorizations and that any restructuring resulting from this reexamination would be included in the FY 1995 proposed rule for notice and comment (59 FR 36901; July 20, 1994). The NRC is therefore establishing a revised methodology for determining annual fees for fuel facilities. The revised methodology has been used to determine the FY 1995 annual fees. The objective of revising the methodology is to reflect more precisely agency generic costs attributable to fuel facility

licensees. This new methodology results in the creation of five fuel facility license fee categories. Licenses are grouped into these categories according to their license (nuclear material type, enrichment, form, quantity, and use/associated activity) and according to the scope, depth of coverage and rigor of generic regulatory programmatic effort applicable to each category. This methodology can be applied to determine fees for new licenses, current licenses and for licensees in unique license situations. In each case, the existing license was used to determine values for licensed nuclear material and its use without regard for current or planned licensee activities, which are at the discretion of the licensee.

The methodology is amenable to changes in the number of licenses, licensed material/activities, and total programmatic resources to be recovered through annual fees. When a license is

modified, given that NRC recovers approximately 100 percent of its generic regulatory program costs through fee recovery, this revised fuel facility fee methodology may result in a change in fee category and may have an effect on the fees assessed to other licensees. For example, if a fuel facility licensee amended its license so as to avoid part 171 fees for fuel facilities, the budget for the safety component would be spread only among those remaining licensees, resulting in a higher annual fee for those licensees.

Therefore, the methodology is applied as follows. First, a fee category is assigned based on certain criteria and the licensed nuclear material and use/associated activity. Although a licensee may choose not to fully utilize a license, the license is still used as the source for determining authorized nuclear material and use/associated activity. Next, the category/license information is used to

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determine where the license will fit into the matrix. The matrix depicts the categorization of licenses by authorized material and use/activity and the relative programmatic effort associated

with each category. The programmatic effort (expressed as a value in the matrix) reflects the safety or safeguards significance associated with the authorized nuclear material and use/

activity, and the commensurate generic regulatory program (i.e., scope, depth and rigor). The relative weighted factors per facility for the various subclasses are as follows:

	Number of facilities	Relative weight per facility	
		Safety	Safeguards
High Enriched Fuel	2	1.00	1.00
Low Enriched Fuel	4	.52	.34
Limited Operations Facility	1	.20	.11
UF ₆ Conversion	1	.30	.....
Others	3	.12	.09

The above weighted factors for the safety and safeguards portion are applied to the \$10.1 million base fee. To this base fee, the LLW and other surcharges are added. The resulting annual fee for each fuel facility, including the additional charge (surcharge) is shown below.

Type of facility	Annual fee
High Enriched Fuel:	
Babcock & Wilcox	\$2,569,000
Nuclear Fuel Services	2,569,000
Low Enriched Fuel:	
Combustion Engineering (Hematite)	1,261,000
General Electric	1,261,000
Siemens Nuclear Power	1,261,000
Westinghouse	1,261,000
Limited Operation Facilities:	
B&W Fuel Company	501,700
UF ₆ Conversion:	
AlliedSignal Corp	639,200
Other Fuel Facilities:	
Babcock & Wilcox	340,700
General Atomics	340,700
General Electric	340,700

Uranium Recovery

Of the \$2.3 million (\$1.8 million in base budget plus \$0.5 million in surcharge) attributable to the uranium recovery class of licensees, approximately \$1.9 million will be assessed to the Department of Energy (DOE) to recover the costs associated with DOE facilities under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). In September 1993, DOE became a general licensee of the NRC because post-reclamation closure of the Spook, Wyoming site had been achieved. There are two additional UMTRCA sites now under the general license: Burrell, Pennsylvania and Loman, Idaho.

As indicated earlier, the NRC has refined its methodology for establishing part 171 annual fees for non-DOE uranium recovery licenses. The methodology identifies three categories of licenses: (1) Conventional uranium

mills; (2) solution mining uranium mills; and (3) mill tailings disposal facilities, each of which benefits from the generic uranium recovery program. In order to determine the benefits to each uranium recovery category, a matrix was established to relate the category and the level of benefit, by program element and subelement. The two major program elements of the generic uranium recovery program are activities related to facility operations and those related to facility closure. Each of these elements was further divided into three subelements. The three major subelements of generic activities related to uranium facility operations are activities related to: (1) The operation of the mill; (2) the handling and disposal of waste; and (3) prevention of groundwater contamination. The three major subelements of generic activities related to uranium facility closure are activities related to: (1) decommissioning of facilities and cleanup of land; (2) reclamation and closure of the tailings impoundment; and (3) cleanup of contaminated groundwater. Weighted factors were assigned to each program element and subelement.

The two existing categories of mills, those that perform conventional milling and those that perform solution mining and milling, are continued. The existing category for licenses whose purpose is to dispose of Section 11e.(2) byproduct material is also continued. The matrix also contains a category for conventional mills with Possession Only Licenses that are also authorized to dispose of more than 5,000 cubic yards of byproduct material, as defined in section 11e.(2) of the Atomic Energy Act of 1954, as amended, from other facilities. Currently, there are three mills authorized for such waste disposal. The applicability of the generic program in each subelement to each uranium recovery category was qualitatively

estimated as either significant, some, minor, or none.

The resulting relative weighted factor per facility for the various subclasses is as follows:

	Number of facilities	Relative weight per facility
Class I facilities	3	1.00
Class II facilities	6	.57
11e.(2) disposal	1	.73
11e.(2) disposal incidental to existing tailings sites .	3	.13

Using this refined approach, the remaining \$0.4 million not recovered from DOE results in annual fees for each class of licensees as follows:

2.A.(2)—Class I facilities: \$60,900
 2.A.(2)—Class II facilities: \$34,400
 2.A.(2)—Other facilities: \$22,000
 2.A.(3)—11e(2) disposal: \$44,700
 2.A.(4)—11e(2) disposal incidental to existing tailings site: \$7,900

Rare Earth Facilities

Because rare earth facilities are now budgeted for separately, a separate class has been established for these licensees in this final rule. For rare earth facilities, the generic and other regulatory costs of \$66,000 have been spread uniformly among licensees who have a specific license for receipt and processing of source material. This results in an annual fee of \$22,000 for each facility.

Spent Fuel Storage Facilities

For spent fuel storage licenses, the costs of \$2.2 million (\$1.6 million in base budget plus \$0.6 million in surcharge) have been spread uniformly among those licensees who hold specific or general licenses for receipt and storage of spent fuel at an ISFSI. This results in an annual fee of \$279,000 for each facility. This represents a fee decrease compared to FY 1994 because there are now more licensees in this

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class. It also represents a fee decrease compared to the proposed rule because of higher estimated collections anticipated in FY 1995 from 10 CFR part 170 fees.

Materials Licenses

To equitably and fairly allocate the \$24.7 million directly attributable to the approximately 6,200 diverse material users and registrants plus the materials share (\$2.8 million) of the surcharge, the NRC has continued to base the annual fee on the 10 CFR Part 170 application fees and an estimated cost for inspections. Because the application fees and inspection costs are indicative of the complexity of the license, this approach continues to provide a proxy for allocating the generic and other regulatory costs to the diverse categories of licensees based on how much it costs NRC to regulate each category. The fee calculation also continues to consider the inspection frequency, which is indicative of the safety risk and resulting regulatory costs associated with the categories of licensees. In summary, the annual fee for these categories of licenses is developed as follows:

Annual Fee=(Application Fee+Average Inspection Cost/Inspection Priority)×Constant+(Unique Category Costs).

The constant is the multiple necessary to recover \$24.7 million and is 1.7 for FY 1995. The unique costs are any special costs that the NRC has budgeted for a specific category of licensees. For FY 1995, unique costs of approximately \$1.0 million were identified for the medical improvement program which is attributable to medical licensees.

For the first time, the NRC is combining the "flat" material inspection fees in 10 CFR part 170 with the annual fees in 10 CFR part 171. This is being done to recognize that the "regulatory service" to licensees referred to in OBRA-90, comprises the total regulatory activities that NRC determines are needed to regulate a class of licensees. These regulatory services include not only "flat" fee inspections but also research, rulemaking, orders, enforcement actions, responses to allegations, incident investigations and other activities necessary to regulate classes of licensees. In addition to being consistent with the regulatory service concept in OBRA-90, the NRC believes that materials licensees' "flat" inspection fees can be combined with their annual fees without creating any significant questions of fairness. This is because the concept of the annual fee, including the inspection fee, has, in

effect, already been implemented for most materials licensees. First, materials licensees currently pay a "flat fee" per inspection based on the average cost of an inspection for their fee category, and second, the routine inspection frequency is identical for most licensees in the same fee category. Furthermore, past experience suggests that less than 10 percent of the materials inspections for these licensees are nonroutine. Thus, licensees in the same materials license fee category currently pay essentially the same average annual cost for inspections. Therefore, combining inspection and annual fees results in essentially the same average cost per license over time. Additionally, this approach will provide materials licensees with simpler and more predictable NRC fee charges as there will be no additional fees paid for periodic inspections. Because certain materials FY 1995 annual fees include inspection costs, those materials licensees who paid a "flat" 10 CFR part 170 inspection fee for inspections conducted in FY 1995 will receive a credit for those payments towards their FY 1995 annual fee assessed under 10 CFR part 171. Those Agreement state licensees who paid an inspection fee for inspections conducted in FY 1995 will not receive a credit-refund because they pay no annual fee.

Materials annual fees for FY 1995 have decreased compared to the FY 1994 annual fees. There are two basic reasons for this. First, the FY 1995 budgeted amount attributable to materials licensees is about 35 percent lower than the comparable FY 1994 amount, based on the reallocation of certain materials budgeted costs to the broadest base of NRC licensees rather than to materials licensees as discussed earlier. Second, the professional hourly rate for the materials program has decreased from \$133 per hour to \$116 per hour, due to the use of cost center concepts in allocating NRC budgeted costs. These decreases are partially offset by a decrease in the number of licensees to be assessed annual fees in FY 1995 (from about 6,500 to about 6,200) and the inclusion of the average annual inspection costs with the annual fee. The annual fees for some categories in this final rule have decreased compared to the proposed rule because of higher estimated collections anticipated in FY 1995 from 10 CFR part 170 fees.

A materials licensee may pay a reduced annual fee if the licensee qualifies as a small entity under the NRC's size standards and certifies that it is a small entity using NRC Form 526.

Transportation

To recover the \$4.7 million attributable to the transportation class of licensees, \$1.2 will be assessed to the Department of Energy (DOE) to cover all of its transportation casks under Category 18. The remaining transportation costs for generic activities (\$3.5 million) are allocated to holders of approved QA plans. The annual fee for approved QA plans is \$77,800 for users and fabricators and \$1,000 for users only.

The amount or range of the FY 1995 annual fees for all materials licensees is summarized as follows:

MATERIALS LICENSES—ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel.	\$2,569,000.
Part 70—Low enriched fuel.	1,261,000.
Part 40—UF ₆ conversion.	639,200.
Part 40—Uranium recovery.	22,000 to 60,900.
Part 30—Byproduct Material.	480 to 23,200. ¹
Part 71—Transportation of Radioactive Material.	1,000 to 77,800.
Part 72—Independent Storage of Spent Nuclear Fuel.	279,000.

¹ Excludes the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies, which is \$415,300.

Surcharge

Section 171.16(e) is amended to establish the additional charge which is included in the annual fees shown in § 171.16(d) of this final rule. The Commission is continuing the approach established in FY 1993 to assess the budgeted low-level waste (LLW) costs to two broad categories of licensees (large LLW generators and small LLW generators) based on historical disposal data. This surcharge is included in the annual fees for the applicable categories in § 171.16(d). Although these NRC LLW disposal regulatory activities are not directly attributable to regulation of NRC materials licensees, the costs nevertheless must be recovered in order to comply with the requirements of OBRA-90. For FY 1995, the additional charge recovers approximately 18 percent of the NRC budgeted costs of \$7.0 million relating to LLW disposal generic activities from small generators, which are comprised of materials licensees that dispose of LLW. The percentage distribution reflects the

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deletion of costs for LLW disposed of by Agreement State licensees. Of the \$7.0 million in budgeted costs shown above for LLW activities, 82 percent of the amount (\$5.7 million) is allocated to the 119 large waste generators (reactors and fuel facilities) included in 10 CFR part 171. This results in an additional charge of \$48,000 per facility. Thus, the LLW charge will be \$48,000 per HEU, LEU, UF₆ facility, and each of the other three fuel facilities. The remaining \$1.3 million is allocated to the materials licensees in categories that generate low-level waste (895 licensees) as follows: \$1,400 per materials license except for those in Category 17. Those licensees that generate a significant amount of low-level waste for purposes of the calculation of the \$1,400 surcharge are in fee Categories 1.B, 1.D, 2.C, 3.A, 3.B, 3.C, 3.L, 3.M, 3.N, 4.A, 4.B, 4.C, 4.D, 5.B, 6.A, and 7.B. The surcharge for licenses in fee Category 17, which also generate and/or dispose of low-level waste, is \$21,000.

Certain costs that caused fairness and equity concerns are allocated to materials licensees based on the percent of the budget that each class comprises. This allocation approach was explained in the previous explanation of changes to § 171.15 of this section.

Footnote 1 of 10 CFR 171.16(d) is amended to provide for a waiver of the annual fees for those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals, or filed for possession only/storage only licenses before October 1, 1994, and permanently ceased licensed activities entirely by September 30, 1994. All other licensees and approval holders who held a license or approval on October 1, 1994 are subject to the FY 1995 annual fees.

Section 171.17 Proration

10 CFR 171.17 is amended to add a proration provision to allow for proration of the annual fee for a downgraded materials license upon request of the licensee. A proration request must be filed with the NRC within 90 days from the effective date of the final rule establishing the annual fees for which a proration is sought. Absent extraordinary circumstances, any request for proration of the annual fee for a downgraded materials license filed beyond that date will not be considered.

Annual fees for materials licenses downgraded after October 1 of a fiscal year will be prorated on the basis of when the applications for downgrade are received by the NRC, provided the licensee permanently ceased the stated

activities during the specified period. Annual fees for materials licenses for which applications to downgrade are filed during the period October 1 through March 31 of the fiscal year will be prorated as follows: (1) Licenses for which applications have been filed to reduce the scope of the license from a higher fee category(ies) to a lower fee category(ies) will be assessed one-half the annual fee for the higher fee category(ies) and one-half the annual fee for the lower fee category(ies), and, if applicable, the full annual fee for fee categories not affected by the downgrade; and (2) licenses with multiple fee categories for which applications have been filed to downgrade by deleting a fee category will be assessed one-half the annual fee for the fee category being deleted and the full annual fee for the remaining categories. Materials licenses for which applications for downgrade are filed on or after April 1 of the FY are assessed the full fee for that fiscal year.

Section 171.19 Payment

This section is revised to give credit for partial payments made by certain licensees in FY 1995 toward their FY 1995 annual fees. The NRC anticipates that the first, second, and third quarterly payments for FY 1995 will have been made by operating power reactor licensees and some materials licensees before the final rule is effective. Therefore, the NRC will credit payments received for those quarterly annual fee assessments toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill in order to recover the full amount of the revised annual fee, or to make refunds, as necessary. The NRC also expects that certain materials licensees will have paid inspection fees for inspections that were performed in FY 1995, whereas this final rule includes such costs in the annual fee. The FY 1995 annual fee bills will reflect a credit for these inspection fee payments. As in FY 1994, payment of the annual fee is due on the effective date of the rule and interest accrues from the effective date of the rule. However, interest will be waived if payment is received within 30 days from the effective date of the rule.

During the past four years many licensees have indicated that although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were in fact either not using the material to conduct operations or had disposed of the material and no longer needed the license. In responding to licensees about this matter, the NRC has stated that annual fees are assessed

based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that the annual fee will be assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. To remove any uncertainty, the NRC issued minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7 on July 20, 1993 (58 FR 38700).

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for the final regulation.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

VII. Regulatory Analysis

With respect to 10 CFR part 170, this final rule was developed pursuant to Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power Company*, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia, *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic*

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Industries Association v. Federal Communications Commission, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied, 444 U.S. 1102 (1980). The Court held that—

(1) The NRC had the authority to recover the full cost of providing services to identifiable beneficiaries;

(2) The NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations;

(3) The NRC could charge for costs incurred in conducting environmental reviews required by NEPA;

(4) The NRC properly included the costs of uncontested hearings and of administrative and technical support services in the fee schedule;

(5) The NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and

(6) The NRC's fees were not arbitrary or capricious.

With respect to 10 CFR part 171, on November 5, 1990, the Congress passed Pub. L. 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90) which required that for FYs 1991 through 1995, approximately 100 percent of the NRC budget authority be recovered through the assessment of fees. OBRA-90 was amended in 1993 to extend the 100 percent fee recovery requirement for NRC through 1998. To accomplish this statutory requirement, the NRC, in accordance with § 171.13, is publishing the final amount of the FY 1995 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. OBRA-90 and the Conference Committee Report specifically state that—

(1) The annual fees be based on the Commission's FY 1995 budget of \$525.6 million less the amounts collected from Part 170 fees and the funds directly appropriated from the NWF to cover the NRC's high level waste program;

(2) The annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and

(3) The annual fees be assessed to those licensees the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment.

The NRC is establishing a uniform annual fee rather than an annual fee that considers the various vendors, the types of containment, and the location of the operating power reactors. The NRC believes the difference in annual fees of about \$20,000 between the highest and lowest annual fee assessed under the current method is small enough relative to the size of the \$2.9 million annual fees, to justify moving to a uniform annual fee particularly in light of the administrative savings that will follow. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

10 CFR Part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 490 U.S. 1045 (1989).

10 CFR parts 170 and 171, which established fees based on the FY 1989 budget, were also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S. Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

The NRC's FY 1991 annual fee rule was largely upheld by the D.C. Circuit Court of Appeals in *Allied Signal v. NRC*, 988 F.2d 146 (D.C. Cir. 1993).

VIII. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority through the assessment of user fees. OBRA-90 further requires that the NRC establish a schedule of charges that fairly and equitably allocates the aggregate amount of these charges among licensees.

This final rule establishes the schedules of fees that are necessary to implement the Congressional mandate for FY 1995. The final rule results in a decrease in the annual fees charged to most licensees, and holders of certificates, registrations, and approvals,

including those licensees who are classified as small entities under the Regulatory Flexibility Act. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as Appendix A to this final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these final amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, registrations, approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source Material, Special Nuclear Material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 170 and 171.

Appendix A to this Final Rule Regulatory Flexibility Analysis for the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a

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regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act (RFA), first the NRC adopted size standards for determining which NRC licensees qualify as small entities (50 FR 50241; December 9, 1985). These size standards were clarified November 8, 1991 (56 FR 56672). On April 7, 1994 (59 FR 16513), the Small Business Administration (SBA) issued a final rule changing its size standards. The SBA adjusted its receipts-based size standards levels to mitigate the effects of inflation from 1984 to 1994. On November 30, 1994 (59 FR 61293), the NRC published a proposed rule to amend its size standards. The NRC proposed to adjust its receipts-based size standards from \$3.5 million to \$5 million to accommodate inflation and to conform to the SBA final rule. The NRC also proposed to eliminate the separate \$1 million size standard for private practice physicians and to apply a receipts-based size standard of \$5 million to this class of licensees. This mirrors the revised SBA standard of \$5 million for medical practitioners. The NRC also proposed to establish a size standard of 500 or fewer employees for business concerns that are manufacturing entities. This standard is the most commonly used SBA employee standard and would be the standard applicable to the types of manufacturing industries that hold an NRC license. After evaluating the two comments received, a final rule that would revise the NRC's size standards as proposed was developed and approved by the SBA on March 24, 1995. The NRC published the final rule revising its size standards on April 11, 1995 (60 FR 18344). The revised standards became effective May 11, 1995. The NRC has used the revised standards in the final FY 1995 fee rule. The small entity fee categories in § 171.16(c) of the final rule reflect the changes in the NRC's size standards. A new maximum small entity fee for manufacturing industries with 35 to 500 employees has been established at \$1,800 and a lower-tier small entity fee of \$400 established for those manufacturing industries with less than 35 employees. The lower-tier receipts-based threshold of \$250,000 has been raised to \$350,000 to reflect approximately the same percentage adjustment as that made by the SBA when they adjusted the receipts-based standard from \$3.5 million to \$5 million. The NRC believes that these actions will reduce the impact of annual fees on small businesses. The NRC size standards are codified at 10 CFR 2.810.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. OBRA-90 was amended in 1993 to extend the 100 percent recovery requirement for NRC through 1998. For FY 1991, the amount for collection was approximately \$445.3 million; for FY 1992, approximately \$492.5 million; for FY 1993 about \$518.9 million; for FY 1994 about \$513 million and the amount to

be collected in FY 1995 is approximately \$503.6 million.

To comply with OBRA-90, the Commission amended its fee regulations in 10 CFR parts 170 and 171 in FY 1991 (56 FR 31472; July 10, 1991) in FY 1992, (57 FR 32691; July 23, 1992) in FY 1993 (58 FR 38666; July 20, 1993) and in FY 1994 (59 FR 36895; July 20, 1994) based on a careful evaluation of over 1,000 comments. These final rules established the methodology used by NRC in identifying and determining the fees assessed and collected in FY 1991, FY 1992, FY 1993 and FY 1994. The NRC has used the same methodology established in the FY 1991, FY 1992, FY 1993, and FY 1994 rulemakings to establish the fees to be assessed for FY 1995 with the following exceptions: (1) The Commission has reinstated the annual fee exemption for nonprofit educational institutions; (2) in the FY 1994 final rule, the NRC directly assigned additional effort to the reactor and materials programs for the Office of Investigations, the Office of Enforcement, the Advisory Committee on Reactor Safeguards, and the Advisory Committee on Nuclear Waste; and (3) for FY 1995, the NRC is using cost center concepts, now being used for budgeting purposes, to develop the fees. The NRC is also (1) changing the method for allocating the budgeted costs (about \$56 million) that cause fairness and equity concerns; (2) eliminating the materials "flat" inspection fees in 10 CFR 170.31 and including the inspections with the annual fees in 10 CFR 171.16(d); and (3) establishing two professional hourly rates to better align the budgeted costs with the major classes of licensees. The methodology for assessing low-level waste (LLW) costs was changed in FY 1993 based on the U.S. Court of Appeals decision dated March 16, 1993 (988 F.2d 146 (D.C. Cir. 1993)). The FY 1993 LLW allocation method has been continued in the FY 1995 final rule.

II. Impact on Small Entities.

The comments received on the proposed FY 1991, FY 1992, FY 1993, and FY 1994 fee rule revisions and the small entity certifications received in response to the final FY 1991, FY 1992, FY 1993, and FY 1994 fee rules indicate that NRC licensees qualifying as small entities under the NRC's size standards are primarily those licensed under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these materials licensees, about 18 percent (approximately 1,300 licensees) have requested small entity certification in the past. In FY 1993, the NRC conducted a survey of its materials licensees. The results of this survey indicated that about 25 percent of these licensees could qualify as small entities under the current NRC size standards.

The commenters on the FY 1991, FY 1992, FY 1993, and FY 1994 proposed fee rules indicated the following results if the proposed annual fees were not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put it at an extreme disadvantage with its much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.
- Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in about 10 percent of the well-logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.
- Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.
- Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Over the past four years, approximately 2,900 license, approval, and registration terminations have been requested. Although some of these terminations were requested because the license was no longer needed or licenses or registrations could be combined, indications are that other termination requests were due to the economic impact of the fees.

The NRC continues to receive written and oral comments from small materials licensees. These commenters previously indicated that the \$3.5 million threshold for small entities was not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

To alleviate the continuing significant impact of the annual fees on a substantial number of small entities, the NRC considered

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alternatives, in accordance with the RFA. These alternatives were evaluated in the FY 1991 rule (56 FR 31472; July 10, 1991) in the FY 1992 rule (57 FR 32691; July 23, 1992), in the FY 1993 rule (58 FR 38666; July 20, 1993) and in the FY 1994 rule (59 FR 36895; July 20, 1994). The alternatives considered by the NRC can be summarized as follows:

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

The NRC has reexamined the FY 1991, FY 1992, FY 1993, and FY 1994 evaluation of these alternatives. Based on that reexamination, the NRC continues to believe that establishment of a maximum fee for small entities is the most appropriate option to reduce the impact on small entities.

The NRC established, and is continuing for FY 1995, a maximum annual fee for small entities. The RFA and its implementing guidance do not provide specific guidelines on what constitutes a significant economic impact on a small entity. Therefore, the NRC has no benchmark to assist it in determining the amount or the percent of gross receipts that should be charged to a small entity. For FY 1995, the NRC will rely on the analysis previously completed that established a maximum annual fee for a small entity and the amount of cost that must be recovered from other NRC licensees as a result of establishing the maximum annual fees. The NRC continues to believe that license fees, or any adjustments to these fees during the past year, do not have a significant impact on small entities. In issuing this final rule for FY 1995, the NRC concludes that the materials license fees do not have a significant impact on a substantial number of small entities and that the maximum annual small entity fee of \$1,800 be continued.

By maintaining the maximum annual fee for small entities at \$1,800, the annual fee for many small entities is reduced while at the same time materials licensees, including small entities, pay for most of the FY 1995 costs (\$27 million of the total \$33 million) attributable to them. The costs not recovered from small entities are allocated to other materials licensees and to operating power reactors. However, the amount that must be recovered from other licensees as a result of maintaining the maximum annual fee is not expected to increase. Therefore, the NRC is continuing, for FY 1995, the maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity.

While reducing the impact on many small entities, the Commission agrees that the maximum annual fee of \$1,800 for small entities, when added to the Part 170 license fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, as in FY 1992, FY 1993, and FY 1994, the NRC is continuing the lower-tier small entity annual fee of \$400 for small

entities with relatively low gross annual receipts. The lower-tier small entity fee of \$400 also applies to manufacturing concerns and educational institutions not State or publicly supported with less than 35 employees. This lower-tier small entity fee was first established in the final rule published in the Federal Register on April 17, 1992 (57 FR 13625) and would now include manufacturing companies with a relatively small number of employees.

In establishing the annual fee for lower-tier small entities, the NRC continues to retain a balance between the objectives of the RFA and OBRA-90. This balance can be measured by: (1) The amount of costs attributable to small entities that is transferred to larger entities (the small entity subsidy); (2) the total annual fee small entities pay, relative to this subsidy; and (3) how much the annual fee is for a lower-tier small entity. Based on this final rule, the amount of the FY 1995 small entity subsidy is lower than that for FY 1994. Thus, no change is being made.

III. Summary

The NRC has determined the annual fee significantly impacts a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirement to consider means of reducing the impact of the fee on small entities. On the basis of its regulatory flexibility analyses, the NRC concludes that a maximum annual fee of \$1,800 for small entities and a lower-tier small entity annual fee of \$400 for small businesses and not-for-profit organizations with gross annual receipts of less than \$350,000, small governmental jurisdictions with a population of less than 20,000, small manufacturing entities that have less than 35 employees and educational institutions that are not State or publicly supported and have less than 35 employees reduces the impact on small entities. At the same time, these reduced annual fees are consistent with the objectives of OBRA-90. Thus, the revised fees for small entities maintain a balance between the objectives of OBRA-90 and the RFA. The NRC has used the methodology and procedures developed for the FY 1991, FY 1992, FY 1993, and FY 1994 fee rules in this final rule except those noted in Section III, in establishing the FY 1995 fees. Therefore, the analysis and conclusions established in the FY 1991, FY 1992, FY 1993, and FY 1994 rules remain valid for this final rule for FY 1995.

60 FR 33462
Published 6/28/95

*Revision of Fee Schedules; 100% Fee
Recovery, FY 1995; Correction*

See Part 171 Statements of Consideration

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61 FR 16203
Published 4/12/96
Effective 6/11/96

10 CFR Parts 170 and 171

RIN 3150-AF39

Revision of Fee Schedules; 100% Fee Recovery, FY 1996

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending the licensing, inspection, and annual fees charged to its applicants and licensees. The amendments are necessary to implement the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year (FY) 1996 less amounts appropriated from the Nuclear Waste Fund (NWF). The amount to be recovered for FY 1996 is approximately \$462.3 million.

EFFECTIVE DATE: June 11, 1996.

ADDRESSES: Copies of comments received and the agency workpapers that support these final changes to 10 CFR Parts 170 and 171 may be examined at the NRC Public Document Room at 2120 L Street, NW., (Lower Level), Washington, DC 20555-0001.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone 301-415-6213.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Responses to Comments.
- III. Final Action.
- IV. Section-by-Section Analysis.
- V. Environmental Impact: Categorical Exclusion.
- VI. Paperwork Reduction Act Statement.
- VII. Regulatory Analysis.
- VIII. Regulatory Flexibility Analysis.
- IX. Backfit Analysis.

I. Background

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), enacted November 5, 1990, requires that the NRC recover approximately 100 percent of its budget authority, less the amount appropriated from the Department of Energy (DOE) administered NWF, for FYs 1991 through 1995 by assessing fees. OBRA-90 was amended in 1993 to extend the NRC's 100 percent fee recovery requirement through FY 1998.

The NRC assesses two types of fees to recover its budget authority. First, license and inspection fees, established in 10 CFR Part 170 under the authority of the Independent Offices Appropriation Act (IOAA), 31 U.S.C. 9701, recover the NRC's costs of providing individually identifiable services to specific applicants and licensees. Examples of the services provided by the NRC for which these fees are assessed are the review of applications for the issuance of new licenses, approvals or renewals, and amendments to licenses or approvals. Second, annual fees, established in 10 CFR Part 171 under the authority of OBRA-90, recover generic and other regulatory costs not recovered through 10 CFR Part 170 fees.

On June 20, 1995 (60 FR 32218), the NRC published its final rule establishing the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its budget authority for FY 1995, less the appropriation received from the Nuclear Waste Fund. The NRC stated in the FY 1995 final rule that in an effort to stabilize annual fees, beginning in FY 1996, the NRC would adjust the annual fees by the percentage change (plus or minus) in NRC's total budget authority unless there was a substantial change in the total NRC budget authority or the magnitude of the budget allocated to a specific class of licensees, in which case the annual fee base would be recalculated (60 FR 32225; June 20, 1995). The NRC also stated that the percentage change would be adjusted based on changes in the 10 CFR Part 170 fees and other receipts as well as on the number of licensees paying fees.

On January 30, 1996 (61 FR 2948), the NRC published a proposed rule to establish the licensing, inspection, and annual fees necessary for the NRC to recover approximately 100 percent of its

budget authority for FY 1996, less the appropriation received from the Nuclear Waste Fund. Several changes were proposed by the NRC to the fees to be assessed for FY 1996. These changes were highlighted in the proposed rule (61 FR 2948; January 30, 1996). The major changes are summarized as follows:

1. Stabilize 10 CFR Part 171 annual fees by adjusting all annual fees downward by about 6 percent. This change is consistent with the NRC's intention, stated in the FY 1995 final rule, that annual fees would be stabilized, beginning in FY 1996, by adjusting the FY 1995 annual fees by the percent change (plus or minus) in the NRC budget authority taking into consideration the estimated collections from 10 CFR Part 170 fees and the number of licensees paying fees;
2. Assess 10 CFR Part 171 annual fees of less than \$100,000 to materials licensees on the anniversary date of the license. This change continues the streamlining of fees and allows the NRC to make the billing process more efficient by distributing the billing and collection of annual fees over the entire year. The current practice is to bill over 6,000 materials licensees at the same time during the fiscal year;
3. Eliminate the materials "flat" renewal fees in 10 CFR 170.31 and include the costs of the renewals in the annual fees in 10 CFR 171.16(d) for the affected licensees. This change continues the simplification of fees initiated in FY 1995 and is consistent with NRC's recent Business Process Reengineering initiatives to extend the duration of certain materials licenses (61 FR 1109; January 16, 1996);
4. Revise the two professional hourly rates in 10 CFR 170.20 which are used to determine the Part 170 fees assessed by the NRC. The rate for FY 1996 for the reactor program is \$128 per hour and the rate for the materials program is \$120 per hour; and
5. Adjust the 10 CFR 170.21 and 170.31 licensing (application and amendment) "flat" fees for materials licenses to reflect the costs of providing the licensing services.

II. Responses to Comments

The NRC received eight comments on the proposed rule. Although the comment period ended on February 29, 1996, the NRC has reviewed and

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evaluated all comments received, including those that were late.

Many of the comments were similar in nature. For evaluation purposes, these comments have been grouped, as appropriate, and addressed as single issues in this final rule. The comments are as follows:

A. Comments Regarding the Major Changes Proposed in the FY 1996 Fee Rule

1. Streamline and Stabilize Annual Fees

Comment. All commenters responding to this proposed change were encouraged by and supported the positive steps taken by NRC to equitably distribute and to reduce the burden of user fees on licensees. Several commenters indicated that this change represents a greater simplification and streamlining of the fee setting procedures and has eliminated the dramatic swings in NRC fees seen in the past. Commenters stated that the approximate 6 percent reduction in annual fees for all licensees is evidence of this. Other commenters stated that the NRC should continue the process of streamlining and commensurate fee reduction because it is a responsible approach in light of today's highly competitive global nuclear marketplace.

Response. Consistent with the comments, the final rule adopts the methodology to streamline and stabilize FY 1996 annual fees by adjusting these fees by the percentage change (plus or minus) in NRC's total budget authority. The FY 1995 annual fees have been used as base annual fees and these annual fees have been adjusted downward for FY 1996 based on the percentage change in the NRC's budget authority, taking into consideration the total number of licensees paying fees, and estimated collections from 10 CFR Part 170 licensing and inspection fees. Therefore for FY 1996, all annual fees have been adjusted 6.5 percent below the FY 1995 levels.

2. Assess Annual Fees of Less Than \$100,000 to Materials Licenses on the Anniversary Date of License

Comment. Commenters supported the NRC's proposal to invoice materials annual fees of less than \$100,000 on the anniversary date of the license. Commenters stated that, while helping to assist NRC in its billing efforts, it will also provide some relief to entities who have several licenses. The proposed system will allow these licensees to distribute their cash outlays over a longer period of time easing the financial stresses caused by a single payment period.

Response. Consistent with the comments, the NRC in this final rule will assess § 171.16(d) annual fees for those materials licenses whose annual fees are less than \$100,000 based on the anniversary of the date the license was originally issued. Accordingly, a new paragraph is added to § 171.19. For FY 1996, those affected materials licenses with a license anniversary date between October 1, 1995, and the effective date of this final FY 1996 fee rule will be billed upon publication of the final rule in the **Federal Register** and annually thereafter during the anniversary month of the license. Those affected materials licenses whose license anniversary date is on or after the effective date of this final FY 1996 fee rule will be billed during the anniversary month of the license and annually thereafter based on the annual fee in effect at the time of billing. The specific license categories of materials licensees affected by this change are listed in § 171.19(d) of this final rule.

3. Revise the Two Professional Rates in 10 CFR 170.20 Based on the FY 1996 Budget and Adjust the 10 CFR 170.21 and 170.31 Licensing (Application and Amendment) "Flat" Fees for Licenses to Reflect the Costs of Providing the Licensing Services

Comment. Commenters supported the revised method of calculating two hourly rates adopted by NRC in FY 1995 to separately, and more equitably, allocate costs associated with the reactor program and the materials program. Commenters stated that the two rates, based on cost center concepts that identify and allocate budgeted resources, is inherently fairer and more equitable to licensees and is more consistent with Congressional intent to identify and properly assess fees to those entities that utilize NRC resources and regulatory services. However, some commenters indicated that, while they are pleased that the materials rate increase is under 4 percent (\$116 per hour to \$120 per hour) and generally in keeping with inflation, the rate itself is unjustifiably high. These commenters stated that the \$120 hourly rate equals or exceeds the hourly rate of senior consultants or principals at major (national) consulting companies and that it exceeds the accepted rate for similar work in private industry. Some commenters pointed out the increase in the hourly rates exceeds the general increase that was provided to all Federal government workers on January 1, 1996, and they encourage the NRC to control its costs by seeking efficiencies in order to attain a downward trend of licensing and inspection fees comparable to that

being realized in the annual fees. Other commenters indicated that the average cost per staff hour assumes a lower number of work hours relative to that commonly applied in industry and a multiplier which would appear to significantly exceed those commonly enjoyed by private industry. Some commenters stated that although summary calculations are presented in the proposed revisions, insufficient detail is provided to determine the justification for an increase in the hourly fees, i.e., the NRC has not listed the assumptions used in forecasting the predicted FTEs (full time equivalents) considered necessary for the materials program.

Response. Consistent with the comments, the NRC has established in this final rule two professional hourly rates for FY 1996 which will be used to determine the 10 CFR Part 170 fees. A rate of \$128 per hour is established in § 170.20 for the reactor program and a second rate of \$120 per hour is established in § 170.20 for the nuclear materials and nuclear waste programs. The two rates are based on the "cost center" concept that is now being used for budgeting purposes.

The NRC professional hourly rates are established to recover approximately 100 percent of the agency's Congressionally-approved budget, less the appropriation from the Nuclear Waste Fund (NWF), as required by OBRA-90. The rates reflect the NRC budgeted cost per direct professional hour. This cost includes the salary and benefits for the direct hours, and a prorata share of the salary and benefits for the program and agency overhead and agency general and administrative expenses (e.g., rent, supplies, and information technology). Both the method and budgeted costs used by the NRC in the development of the hourly rates of \$128 and \$120 are discussed in detail in Part III, Section-by-Section Analysis, relating to § 170.20 of the proposed rule (61 FR 2951; January 30, 1996) and the same section of this final rule. For example, Table II shows the budgeted costs and the direct FTEs that must be recovered through fees assessed for the hours expended by the direct FTEs. The budgeted costs as well as the direct resources are those required by the NRC to implement its statutory responsibilities and effectively accomplish the mission of the agency. Additional information on the hourly rates is provided in the NRC workpapers located in the Public Document Room. The specific details regarding the budget for FY 1996 are documented in the NRC's publication "Budget Estimates, Fiscal Years 1996-1997" (NUREG-1100,

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Volume 11), which is available to the public. Copies of NUREG-1100, Volume 11, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and copying for a fee in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC 20555-0001.

B. Other Comments

1. Public Interest Exemptions

Comment. Commenters supported NRC's decision to continue to charge annual fees to Federal agencies and to deny their requests for exemption based on "public good" claims.

Response. Consistent with the proposed rule and the comments received, the NRC does not intend to grant public good exemptions to Federal agencies.

2. Fee Legislation

Comment. Several commenters noted that the NRC had completed its report on fee policy as required by the Energy Policy Act of 1992 and that the NRC had sent a report to Congress with legislative recommendations. The commenters commended NRC's efforts in this regard and stated that they continue to believe that 100 percent fee recovery for NRC, as mandated by OBRA-90, is inequitable and unfair to licensees because licensees are paying for certain costs that are not directly related to and do not benefit them. The commenters acknowledged that without legislative changes to OBRA-90, the central problems with NRC's fees cannot be completely resolved. Commenters strongly supported more efforts to define a more equitable fee base and recommended that the NRC continue to work with Congress and the Administration to obtain the necessary legislative changes. In this regard, commenters stated that it is time for NRC to actively pursue a legislative agenda with Congress by drafting specific language to modify OBRA-90 or the Atomic Energy Act.

Response. The need for legislation is beyond the scope of this rulemaking proceeding. As indicated in the FY 1995 final rule (60 FR 32218; June 20, 1995), the NRC will continue to work with the Congress to make fees more fair and equitable.

3. Reexamine the Issue of Fees

Comment. Some commenters stated that both Congress and the NRC should

reexamine the whole issue of fees in the context of the substantial concerns of licensees regarding the trend of more states entering into the Agreement State program. These commenters refer to the stated intentions of Pennsylvania, Ohio, Massachusetts, and Oklahoma to become Agreement States. The commenters indicated that the NRC would then lose about 30 percent of the existing license base and fees would significantly increase unless other budgeting methods are approved or the number of FTEs is reduced in proportion to the reduction in the number of licensees.

Commenters from the uranium recovery industry also indicated that, as the uranium recovery industry continues to shrink in size, the decreasing number of licensees will ultimately be charged increasing annual fees thereby forcing more financial hardships on an already depressed industry. Commenters state that the current system gives preferential treatment to licensees in Agreement States. One commenter suggested that the NRC should enter into reimbursable agreements with the Agreement States before FY 1997, as stated in the FY 1995 final rule. In addition, one commenter believes that NRC should assess the Environmental Protection Agency (EPA) for NRC work such as review of regulations promulgated by EPA relating to radionuclide emission standards.

Response. In FY 1995, the NRC changed the methodology for allocating those budgeted costs (about 10 percent of the NRC budget authority) that cause fairness and equity concerns because the legislation requested by the NRC had not been passed by the Congress (60 FR 32218; June 20, 1995). These costs, which include the cost of the Agreement State oversight and regulatory support to the Agreement States, are now treated in a manner similar to overhead. These costs are distributed based on the percentage of the budget directly attributable to a class of licensees. Commenters at that time supported this method of allocation as being more equitable, pending legislative relief by Congress to remedy this inequitable situation. If additional states become Agreement States and the NRC decides to rebaseline the fees based on substantive changes to the budget, then any increased cost for Agreement State oversight and regulatory support to the Agreement States would be identified, treated similar to overhead, and distributed based on the percentage of the budget directly attributable to a class of licensees.

The NRC also revised its methodologies in the FY 1995 final rule

for determining annual fees for fuel facility and uranium recovery licensees. The revised methodologies resulted in annual fees that more accurately reflect the costs of providing regulatory services to the subclasses of fuel facility and uranium recovery licensees. The revised methodologies were fully explained in Section IV, Section-by-Section Analysis, of the final FY 1995 rule (60 FR 32218; June 20, 1995).

In response to comments relative to annual fee increases as a result of the decrease in the number of licensees, the changes adopted in the FY 1995 final rule to stabilize fees should minimize large fee changes as a result of decreases in licensees. This is substantiated by this final FY 1996 rule which reduces all annual fees by the percent change to the FY 1995 levels.

The NRC indicated in the FY 1995 proposed rule (60 FR 14672; March 20, 1995) that it planned to increase the use of reimbursable agreements with Agreement States and Federal agencies beginning in FY 1997. To this end, the NRC has begun this process for Federal agencies. For example, in FY 1995 the NRC entered into reimbursable agreements with the National Aeronautics and Space Administration (NASA) for the Cassini mission and the Department of Energy (DOE) for plutonium disposition. Reimbursable agreements with Agreement States, however, continue to generate strong responses, both positive and negative, on the part of licensees and Agreement States.

With respect to the interaction between the NRC and EPA on the promulgation of regulations, NRC interactions with EPA are an integral part of NRC's responsibilities under the Atomic Energy Act. Therefore, NRC must include the costs of this work in its budget and cannot perform such work under reimbursable agreements. In addition, the Independent Offices Appropriation Act of 1952, as amended, precludes the NRC from charging fees to Federal agencies for specific services rendered. While the NRC can assess annual fees to Federal agencies holding NRC licenses, the EPA is not considered a licensee of the NRC with respect to regulations promulgated by EPA relating to radionuclide emission standards.

4. Fees Based on Other Factors

Comment. One commenter indicated that NRC fees should take into consideration the competitive condition of certain markets and the effect of fees on domestic and foreign competition. For example, the commenter suggested that the NRC assess a small fee, such as \$5.00 per pound, on imported uranium

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to help offset the NRC budget and that OBRA-90 be amended to include this provision. In addition, the commenter suggested that a fee be added to foreign Separative Work Units (SWUs) used by U.S. utilities to enrich uranium. The commenter indicated that these fees, if levied, would not only solve part of the NRC's financing problems, but would also "rejuvenate the domestic uranium mining, milling, and enrichment businesses." Another commenter believes that NRC should give full consideration to the effects of imposing significant annual fees on the domestic uranium recovery industry particularly in light of the Secretary of Energy's determination that the industry is non-viable and the requirement of the Atomic Energy Act that the country maintain a viable domestic source material industry to sustain vital national interests.

Response: OBRA-90 requires that the fees assessed to licensees have a reasonable relationship, to the maximum extent practicable, to the cost of providing the service. The IOAA requires that licensing fees be based on the cost of the services rendered. Consistent with these requirements, the NRC assesses licensing fees for import licenses. Basing fees on market competitive positions or assessing a \$5.00 per pound surcharge on imported uranium would not be consistent with these statutes. The issue of adverse economic impact of fees on NRC licensees was addressed in the FY 1991 final rule published July 10, 1991 (56 FR 31476). The NRC indicated that there will be adverse impacts from implementing the legislation and to eliminate the adverse effects, the annual fees would have to be eliminated or reduced. The issues of basing fees on market competitive positions, the amount of material possessed, the frequency of use of the material, and the size of the facilities, were also addressed by the NRC in previous rules and in the Regulatory Flexibility Analysis in Appendix A to the final rule published July 10, 1991 (56 FR 31511-31513). The NRC did not adopt that approach because it would require licensees to submit large amounts of new data and would require additional NRC staff to evaluate the data submitted and to develop and administer even more complex fee schedules. The NRC continues to believe that uniformly allocating the generic and other regulatory costs to the specific licensee within a class to determine the amount of the annual fee is a fair, equitable, and practical way to recover those costs and that establishing reduced annual fees

based on gross receipts (size) is the most appropriate approach to minimize the impact on small entities. Therefore, the NRC finds no basis for altering its approach at this time. This approach was upheld by the D.C. Circuit in its March 16, 1993 decision in *Allied-Signal*.

5. Comment

Several comments were received from uranium recovery licensees suggesting: (1) A tiered fee system that would result in full fees for operating facilities and reduced fees for facilities in shutdown or standby status; (2) a licensee review board be established to review NRC fees annually; (3) the NRC establish standards for its activities, such as a schedule for response intervals for processing licensing actions; and (4) 10 CFR Part 170 bills for services rendered be itemized to show hours spent, a description of the work performed, the names of individuals who completed the work and the dates the work was performed.

Response: In response to a petition of rulemaking from the American Mining Congress (now the National Mining Association) the NRC addressed each of these comments in the *Federal Register* on April 28, 1995 (60 FR 20918-20922). For the reasons provided in response to the petition, the NRC is not adopting the suggestions from the commenters in this final rule. While denying the petition, the NRC noted that it would continue its current practice of providing available backup data to support 10 CFR Part 170 licensing and inspection billings upon request by the licensee or applicant.

6. Relationship Between Fees and Regulatory Services

Comment: Several commenters indicated that although they appreciate NRC's efforts to stabilize fees, they have concerns about the lack of a reasonable relationship between the cost to uranium recovery licensees of NRC's regulatory program and the benefit derived from such services. The commenters assert that the Commission cannot impose fees under the IOAA unless there is a rational relationship between the fees and the regulatory services provided. The commenters, citing *Central & S. Motor Freight Tariff Ass'n v. United States*, 777 F.2d 722, 729 (D.C. Cir. 1985), note that in applying this IOAA requirement, the fees assessed must be reasonably related to, and may not exceed the value of the service to the recipient whatever the agency's cost may be. The commenters then suggest that the NRC fee system may violate this principle because the proposed hourly rate of \$120 for

services provided by agency professionals is unduly high.

Response: The Commission believes that its IOAA fee schedule is fully supported by applicable legal precedent and does not adopt commenters' suggestion. In upholding the Commission's IOAA fee schedule, the United States Court of Appeals for the Fifth Circuit held that the NRC may recover the full cost of providing a service to an identifiable recipient. (Emphasis in original) *Mississippi Power & Light v. NRC*, 601 F.2d at 230. This is consistent with the earlier teaching of *National Cable Television Ass'n Inc. v. FCC*, 554 F.2d 1094, 1106 (D.C. 1976) relied upon by the court in *Central & S. Motor Freight Tariff Ass'n*, *supra*. There the court held that fees should be a reasonable approximation of the attributable costs which the Commission identifies as being expended to benefit the recipient. The Court suggested that a fee might be questionable if the fee unreasonably exceeds the value of the specific services for which it is charged. Here the services provided by the NRC are required for licensees to maintain their licenses and the benefits derived therefrom. The basis for the revised hourly rates is fully discussed in NRC's response to comment A.3; which relate to the hourly rates being assessed by NRC under 10 CFR Part 170. The commenters have provided virtually no evidence that could cause the NRC to conclude that its fees unreasonably exceed the value of the services rendered.

7. Competitive Bids by Contractors

Comment: Two commenters indicated that to control costs government agencies routinely require competitive bids for contract labor. The commenters stated that costs incurred by the Oak Ridge National Laboratory (ORNL) are considered by many licensees to be excessive, yet NRC awards contracts to ORNL on an apparently sole source basis. The commenters suggest that NRC consider as large a pool as possible for potential contractors including both government laboratories and private consultants when seeking contract labor.

Response: The NRC is committed to making its regulatory programs more efficient and effective wherever it can do so without diminishing its ability to protect the public health and safety. The NRC follows accepted contracting practices in all contract awards. Before determining whether to place work with a commercial source under the competitive proposal process or with a DOE laboratory, the NRC considers the

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type of work to be done, the expertise required, and the past performance of the contractor. If the NRC determines that commercial sources are appropriate to perform the work and that conflict of interest can be avoided, a competitive procurement may be initiated. Otherwise, a DOE laboratory may be selected to perform the work. Costs are routinely considered and negotiated in either case.

Costs for particular actions are also affected by the quality of the licensee submittal, the timeliness and quality of licensee responses to NRC questions, delays caused by external factors, the complexity of the site, and the degree of cooperation by the licensee with NRC.

8. Regulatory Deficiencies

Comment. Two commenters indicated that the proposed rule has no provision for allowing licensees to object to unreasonable costs. The commenters stated that without such a mechanism, licensees are at the mercy of the regulators and are expected to pay for services billed and that there is no assurance that any given regulatory function performed by the NRC will be completed expeditiously, efficiently, or within a reasonable range of cost.

Response. While the NRC is committed to the expeditious review of each application and uses all reasonable means of keeping costs as low as feasible, its responsibility for ensuring the public health and safety and environmental protection cannot be compromised. The NRC is committed to the effective use of its increasingly limited resources and therefore cannot afford to use these resources unwisely if it is to successfully perform its mission. 10 CFR Part 170.51 of the Commission's regulations provides the mechanism whereby licensees are allowed to dispute a debt if they believe the debt is incorrect. Disputed debts must be submitted in accordance with the provisions of 10 CFR Part 15.31 "Disputed Debts."

9. Fee Deferral Policy for Standard Plant and Early Site Reviews

Comment. One commenter urged the NRC to reestablish the NRC's previous fee deferral policy for standard plant and early site reviews in order to encourage the development of standardized designs and in light of the NRC decision to issue designs to be certified through rulemaking rather than by granting a license for the certified design.

Response. The NRC addressed this issue in the FY 1995 final rule (60 FR 32222; June 20, 1995), indicating that the Commission decided in its FY 1991

final fee rule that the costs for standardized reactor design reviews, whether for domestic or foreign applicants, should be assessed under 10 CFR Part 170 to those filing an application with the NRC for approval or certification of a standardized design (56 FR 31478; July 10, 1991). The Commission revisited this issue as part of its review of fee policy required by the Energy Policy Act of 1992 (EPA-92) and reconfirmed its FY 1991 decision. The NRC continues to believe that the costs of these reviews should be assessed to advanced reactor applicants. The NRC finds no compelling justification for singling out these types of applications for special treatment and shifting additional costs to operating power reactors or other NRC licensees, and does not believe the points made by the commenter are sufficient to change current policy.

10. Credit for Services Rendered to NRC by Licensees

Comment. One commenter stated that the company performs services for the NRC which include training of NRC personnel, familiarization visits for NRC staff and contractors, and NRC requested tours for foreign and domestic dignitaries. The commenter believes that recovery of the costs by the licensee from the NRC would be justified and suggested that cost recovery for the licensee be implemented via "credits" against NRC annual fees.

Response. The annual fees assessed by the NRC are those necessary to recover 100 percent of its budget authority. In order to give "credits" to licensees, the NRC would have to adjust the entire annual fee structure for a few licensees who volunteer to assist the NRC from time to time. Other licensees would be required to pick up the lost sums attributable to the credits. The NRC notes that it is solely within the discretion of the licensee to determine whether or not such assistance should be provided to the NRC. Therefore, the NRC is not adopting this suggestion.

11. Billing of the Office of Nuclear Regulatory Research Activities Related to Design Certification Reviews

Comment. One commenter stated that NRC should bill design certification applicants for the Office of Nuclear Reactor Regulation (NRR) activities only and not bill for any activities relating to the Office of Nuclear Regulatory Research (RES).

Response. This issue was addressed in the final FY 1995 fee rule. After careful consideration of the comments received on the proposed rule, the NRC indicated that beginning with the

effective date of the FY 1995 final fee rule the NRC would bill applicants for RES's direct review and evaluation of the standard design in support of the NRC's Final Design Approval (FDA) design certification (60 FR 14673; March 20, 1995). In the final FY 1995 fee rule, the NRC stated that it was changing its fee policy in this area and that it will charge vendors for only the research which is necessary to support the issuance of the FDA or certification. Research initiated to address generic issues, such as human factors or code development, will be included in the annual fee assessed under 10 CFR Part 171 annual fees (60 FR 32224; June 20, 1995). The NRC does not believe the arguments advanced by the commenter are sufficient to warrant a change in agency policy.

III. Final Action

The NRC is amending its licensing, inspection, and annual fees to recover approximately 100 percent of its FY 1996 budget authority, including the budget authority for its Office of the Inspector General, less the appropriations received from the NWF. For FY 1996, the NRC's budget authority is \$473.3 million, of which \$11.0 million has been appropriated from the NWF. Therefore, OBRA-90 requires that the NRC collect approximately \$462.3 million in FY 1996 through 10 CFR Part 170 licensing and inspection fees and 10 CFR Part 171 annual fees. This amount to be recovered for FY 1996 is about \$41.3 million less than the total amount to be recovered for FY 1995 and \$50.7 million less when compared to the amount to be recovered for FY 1994. The NRC estimates that approximately \$120.5 million will be recovered in FY 1996 from fees assessed under 10 CFR Part 170 and other offsetting receipts. The remaining \$341.8 million will be recovered through the 10 CFR Part 171 annual fees established for FY 1996.

As a result of the reduced amount to be recovered for FY 1996 and the final changes outlined in this section, the FY 1996 annual fees for all licensees have been reduced by 6.5 percent compared to the annual fees assessed for FY 1995. The following examples illustrate changes in annual fees.

	FY 1995 annual fee	FY 1996 annual fee
Class of Licensees:		
Power Reactors	\$2,936,000	\$2,746,000
Nonpower Reactors	56,500	52,800

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	FY 1995 annual fee	FY 1996 annual fee
High Enriched Uranium Fuel Facility	2,569,000	2,403,000
Low Enriched Uranium Fuel Facility	1,261,000	1,179,000
UF ₆ Conver- sion Facility	639,200	597,800
Uranium Mills	60,900	57,000
Typical Materials Licensees:		
Radiographers	13,900	13,000
Well Loggers	8,100	7,500
Gauge Users	1,700	1,600
Broad Scope Medical	23,200	21,700

The NRC is also continuing its streamlining of the fee structure and process for materials licenses which began in FY 1995 and will make other changes as discussed in Sections A and B. Among the changes will be a change in the billing date for the annual fees imposed on many materials licensees.

The NRC's fees for FY 1996 will become effective 60 days after publication of the final rule in the *Federal Register*. The NRC will send a bill for the amount of the annual fee upon publication of the FY 1996 final rule to the licensee or certificate, registration or approval holder not subject to quarterly billing (those licensees who pay annual fees of less than \$100,000) and whose anniversary date (the first day of the month in which the original license was issued) is before the effective date of the final FY 1996 rule. For these licensees, payment will be due on the effective date of the FY 1996 rule. Those materials licensees whose license anniversary date during FY 1996 falls after the effective date of the final FY 1996 rule will be billed during the anniversary month of the license and payment will be due on the date of the invoice.

A. Amendments to 10 CFR Part 170: Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services

Four amendments have been made to 10 CFR Part 170. These amendments do not change the underlying basis for the regulation—that fees be assessed to applicants, persons, and licensees for specific identifiable services rendered. The amendments also comply with the guidance in the Conference Committee Report on OBRA-90 that fees assessed under the Independent Offices Appropriation Act (IOAA) recover the full cost to the NRC of identifiable regulatory services each applicant or licensee receives.

First, the two professional hourly rates established in FY 1995 in § 170.20 are revised based on the FY 1996 budget. These rates are based on the FY 1996 direct FTEs and that portion of the FY 1996 budget that either does not constitute direct program support (contractual services costs) or is not recovered through the appropriation from the NWF. These rates are used to determine the Part 170 fees. The NRC has established a rate of \$128 per hour (\$223,314 per direct FTE) for the reactor program. This rate is applicable to all activities whose fees are based on full cost under § 170.21 of the fee regulations. A second rate of \$120 per hour (\$209,057 per direct FTE) is established for the nuclear materials and nuclear waste program. This rate is applicable to all materials activities whose fees are based on full cost under § 170.31 of the fee regulations.

The two rates are based on cost center concepts adopted in FY 1995 (60 FR 32225; June 20, 1995) and used for NRC budgeting purposes. In implementing cost center concepts, all budgeted resources are assigned to cost centers to the extent they can be separately distinguished. These costs include all salaries and benefits, contract support, and travel that support each cost center activity.

Second, the NRC has adjusted the current Part 170 licensing and inspection fees in §§ 170.21 and 170.31 for applicants and licensees to reflect the changes in the revised hourly rates.

Third, to continue FY 1995 initiatives for streamlining its fee program and improving the predictability of fees, the NRC has eliminated certain materials "flat" renewal fees in § 170.31 and has amended § 170.12 accordingly. This final action is also consistent with NRC's recent Business Process Reengineering initiative to extend the duration of certain materials licenses. The NRC published a proposed rule in the *Federal Register* for comment on September 8, 1995 (60 FR 46784) explaining this initiative. In the September 8, 1995, proposed rule, certain materials licenses would be extended for five years beyond their expiration date. Additionally, comments were requested on the general topic of the appropriate duration of licenses. A final rule was published in the *Federal Register* on January 16, 1996 (61 FR 1109).

The elimination of 10 CFR Part 170 materials "flat" renewal fees continues to recognize that the NRC's "regulatory service" provided to licensees, as referred to in OBRA-90, is comprised of the total regulatory activities that the NRC determines are needed to regulate

a class of licensees. These regulatory activities include not only renewals but also inspections, research, rulemaking, orders, enforcement actions, responses to allegations, incident investigations, and other activities necessary to regulate classes of licensees. This final action does not result in any net fee increases for affected licensees and would provide those licensees with greater fee predictability, a frequent licensee request in comments on past fee rules. The materials annual fees, which include the cost for any renewals, are effective for FY 1996. Materials licensees who paid a "flat" 10 CFR Part 170 renewal fee for renewal applications filed in FY 1996 will receive a refund for those payments, as appropriate.

Fourth, the language in § 170.31, Category 15, relating to export and import licenses, is amended to clarify that export and import of materials includes the export and import of radioactive waste. The NRC amended 10 CFR Part 110 effective August 21, 1995 (60 FR 37556; July 21, 1995), to require specific licenses for the export or import of radioactive waste.

In summary, the NRC has (1) revised the two 10 CFR Part 170 hourly rates; (2) revised the licensing fees assessed under 10 CFR Part 170 to reflect the cost to the agency of providing the service; (3) eliminated the materials "flat" renewal fees in § 170.31 and amended § 170.12 accordingly; and (4) amended Category 15 in § 170.31 to make clear that fees will be assessed for licenses authorizing the export or import of radioactive waste.

B. Amendments to 10 CFR Part 171: Annual Fees for Reactor Operating Licenses, and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by NRC

Three amendments have been made to 10 CFR Part 171. First, the NRC is amending §§ 171.15 and 171.16 to revise the annual fees for FY 1996 to recover approximately 100 percent of the FY 1996 budget authority, less fees collected under 10 CFR Part 170 and funds appropriated from the NWF.

In the FY 1995 final rule, the NRC stated that it would stabilize annual fees as follows. Beginning in FY 1996, the NRC would adjust the annual fees only by the percentage change (plus or minus) in NRC's total budget authority unless there was a substantial change in the total NRC budget authority or the magnitude of the budget allocated to a specific class of licensees. If either case occurred, the annual fee base would be

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recalculated (60 FR 32225; June 20, 1995). The NRC also indicated that the percentage change would be adjusted based on changes in the 10 CFR Part 170 fees and other receipts as well as on the number of licensees paying the fees. The NRC does not believe the changes to the FY 1996 budget compared to the FY 1995 budget warrant establishing new baseline fees for FY 1996. Therefore, the NRC is establishing the FY 1996 annual fees for all licensees at a level of 6.5 percent below the FY 1995 annual fees. The 6.5 percent reduction is based on the changes in the budget to be recovered from fees, the amount of the budget recovered for 10 CFR Part 170 fees and other offsetting receipts, and changes in the number of licensees paying annual fees. Table I shows the total budget and fee amounts for FY 1995 and FY 1996.

TABLE I.—CALCULATION OF THE PERCENTAGE CHANGE TO THE FY 1995 ANNUAL FEES

(Dollars in millions)

	FY95	FY96
Total Budget	\$525.6	\$473.3
Less NWF	-22.0	-11.0
Total Fee Base	503.6	462.3
Less Part 170 Fees and Other Receipts	141.1	120.5
Total Annual Fee Amount	362.5	341.8

As shown in Table I, the total amount to be recovered from annual fees in FY 1996 is \$20.7M (\$341.8-\$362.5) or 5.7 percent less than the amount that was to be recovered from annual fees in FY 1995. This difference is the net change resulting from a reduction in the budget and a reduction in the expected collection from 10 CFR Part 170 fees and other receipts. The NRC notes that the reduction in 10 CFR Part 170 fees for FY 1996 results primarily from the fact that NRC had a one-time collection of five quarters of 10 CFR Part 170 fees in FY 1995 as a result of changes in its billing practices which permits the NRC to bill for services shortly after they are rendered.

In addition to changes in the budget and 10 CFR Part 170 fees and other receipts, the number of licensees to pay fees in FY 1996 changed compared to FY 1995. Also, the amount of the small entity surcharge (difference between annual fee and small entity fee) decreased as the annual fees decreased. The changes in the number of licensees in the various classes plus the reduction in the small entity surcharge result in an additional decrease in the annual fee

per licensee of 0.8 percent. Thus the total change in the annual fees for FY 1996 compared to FY 1995 is a decrease of 6.5 percent (5.7 percent plus 0.8 percent).

Second, Footnote 1 of 10 CFR 171.16(d) is amended to provide for a waiver of annual fees for FY 1996 for those materials licensees, and holders of certificates, registrations, and approvals who either filed for termination of their licenses or approvals or filed for possession only/storage licenses before October 1, 1995, and permanently ceased licensed activities entirely by September 30, 1995. All other licensees and approval holders who held a license or approval on October 1, 1995, are subject to FY 1996 annual fees. This change is made in recognition of the fact that since the final FY 1995 rule was published in June 1995, some licensees have filed requests for termination of their licenses or certificates with the NRC. Other licensees have either called or written to the NRC since the FY 1995 final rule became effective requesting further clarification and information concerning the annual fees assessed. The NRC is responding to these requests as quickly as possible. However, the NRC was unable to respond and take action on all such requests before the end of the fiscal year on September 30, 1995. Similar situations existed after the FY 1991-1994 rules were published, and in those cases, the NRC provided an exemption from the requirement that the annual fee is waived only when a license is terminated before October 1 of each fiscal year.

Third, beginning in FY 1996, the NRC will assess § 171.16(d) annual fees based on the anniversary of the date the license was originally issued for those materials licenses whose annual fees are less than \$100,000. Accordingly, a new paragraph is added to § 171.19. For example, if the original license was issued on June 17, then the anniversary date of that materials license, for annual fee purposes is June 1. The licensee will be billed in June of each year for the annual fees in effect on the anniversary date (the first day of the month that the original license was issued) of the license. For FY 1996, those affected materials licenses with a license anniversary date between October 1, 1995, and the effective date of the final FY 1996 fee rule will be billed upon publication of the final rule in the Federal Register and annually thereafter during the anniversary month of the license. Those affected materials licenses whose license anniversary date is on or after the effective date of the final FY 1996 fee rule will be billed during the anniversary month of the

license and annually thereafter based on the annual fee in effect at the time of billing. The specific license categories of materials licensees affected by this final change are listed in § 171.19(d) of this final rule.

Billing certain materials licensees on the anniversary date of the license will allow the NRC to make the billing process more efficient by distributing the billing and collection of annual fee invoices over the entire year. The current practice is to bill over 6,000 materials licenses simultaneously during the fiscal year. Section 171.19 is amended to credit quarterly partial annual fee payments for FY 1996 already made by certain licensees in FY 1996 either toward their total annual fee to be assessed, or to make refunds, if necessary. Materials licensees who paid a "flat" 10 CFR Part 170 renewal fee for renewal applications filed in FY 1996 will receive a refund for those payments, as appropriate.

The final amendments to 10 CFR Part 171 do not change the underlying basis for 10 CFR Part 171; that is, charging a class of licensees for NRC costs attributable to that class of licensees. The changes are consistent with the NRC's FY 1995 final rule indicating that, for the period FY 1996-1999, the expectation is that annual fees will be adjusted by the percentage change (plus or minus) to the NRC's budget authority adjusted for NRC offsetting receipts and the number of licensees paying annual fees.

IV. Section-by-Section Analysis

The following analysis of those sections that will be amended by this final rule provides additional explanatory information. All references are to Title 10, Chapter I, U.S. Code of Federal Regulations.

Part 170

Section 170.12 Payment of Fees

This section is amended to conform to the streamlining changes being made by the NRC. Section 170.12(a), which describes application fees, is amended to recognize that the NRC will not issue a new license or amendment prior to receipt of the prescribed fee. Section 170.12(d), which describes renewal fees, is amended to recognize that materials "flat" renewal fees are eliminated. Section 170.12(g), which discusses inspection fees, is amended to recognize that materials "flat" inspection fees were eliminated in the FY 1995 final rule (60 FR 32218; June 20, 1995).

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Section 170.20 Average Cost Per Professional Staff Hour

This section is amended to establish two professional staff-hour rates based on FY 1996 budgeted costs—one for the reactor program and one for the nuclear material and nuclear waste program. Accordingly, the NRC reactor direct staff-hour rate for FY 1996 for all activities whose fees are based on full cost under § 170.21 is \$128 per hour, or \$223,314 per direct FTE. The NRC nuclear material and nuclear waste direct staff-hour rate for all materials activities whose fees are based on full cost under § 170.31 is \$120 per hour, or \$209,057 per direct FTE. The rates are

based on the FY 1996 direct FTEs and NRC budgeted costs that are not recovered through the appropriation from the NWF. The NRC has continued the use of cost center concepts established in FY 1995 in allocating certain costs to the reactor and materials programs in order to more closely align budgeted costs with specific classes of licensees. The method used to determine the two professional hourly rates is as follows:

1. Direct program FTE levels are identified for both the reactor program and the nuclear material and waste program.
2. Direct contract support, which is the use of contract or other services in

support of the line organization's direct program, is excluded from the calculation of the hourly rate because the costs for direct contract support are charged directly through the various categories of fees.

3. All other direct program costs (i.e., Salaries and Benefits, Travel) represent "in-house" costs and are to be allocated by dividing them uniformly by the total number of direct FTEs for the program. In addition, salaries and benefits plus contracts for general and administrative support are allocated to each program based on that program's salaries and benefits. This method results in the following costs which are included in the hourly rates.

TABLE II.—FY 1996 BUDGET AUTHORITY TO BE INCLUDED IN HOURLY RATES

[Dollars in millions]

	Reactor program	Materials program
Salary and Benefits:		
Program	\$149.6	\$46.3
Allocated Agency Management & Support	40.9	12.7
Subtotal	190.5	59.0
General and Administrative Support (G&A):		
Program Travel and Other Support	11.7	3.2
Allocated Agency Management and Support	69.5	21.5
Subtotal	81.2	24.7
Less offsetting receipts .....	.1	
Total Budget Included in Hourly Rate	271.6	83.7
Program Direct FTEs	1,216.2	400.5
Rate per Direct FTE	223,314	209,057
Professional Hourly Rate	128	120

Dividing the \$271.6 million budget for the reactor program by the number of reactor program direct FTEs (1216.2) results in a rate for the reactor program of \$223,314 per FTE for FY 1996. Dividing the \$83.7 million budget for the nuclear materials and nuclear waste program by the number of program direct FTEs (400.5) results in a rate of \$209,057 per FTE for FY 1996. The Direct FTE Hourly Rate for the reactor program is \$128 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing the cost per direct FTE (\$223,314) by the number of productive hours in one year (1744 hours) as indicated in OMB Circular A-76, "Performance of Commercial Activities." The Direct FTE Hourly Rate for the materials program is \$120 per hour (rounded to the nearest whole dollar). This rate is calculated by dividing the cost per direct FTE (\$209,057) by the number of productive hours in one year (1744 hours). The method used to calculate the FY 1996

hourly rate is the same as the method used in the FY 1995 rule. The FY 1996 rate is slightly higher than the FY 1995 rate due in part to the Federal pay raise given to all Federal employees in January 1995.

Section 170.21 Schedule of Fees for Production and Utilization Facilities, Review of Standard Reference Design Approvals, Special Projects, Inspections and Import and Export Licenses

The NRC is revising the licensing and inspection fees in this section, which are based on full-cost recovery, to reflect FY 1996 budgeted costs and to recover costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on the professional hourly rate, as shown in § 170.20, for the reactor program and any direct program support (contractual services) costs expended by the NRC. Any professional hours expended on or after

the effective date of the final rule will be assessed at the FY 1996 hourly rate for the reactor program, as shown in § 170.20. Although the average amounts of time needed to review import and export licensing applications have not changed, the fees in § 170.21, facility Category K, have increased from FY 1995 as a result of the increase in the hourly rate.

For those applications currently on file and pending completion, footnote 2 of § 170.21 is revised to provide that professional hours expended up to the effective date of the final rule will be assessed at the professional rates in effect at the time the service was rendered. For topical report applications currently on file that are still pending completion of the review, and for which review costs have reached the applicable fee ceiling established by the July 2, 1990, rule, the costs incurred after any applicable ceiling was reached through August 8, 1991, will not be billed to the applicant. Any professional

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hours expended for the review of topical report applications, amendments, revisions, or supplements to a topical report on or after August 9, 1991, are assessed at the applicable rate established by § 170.20.

Section 170.31 Schedule of Fees for Materials Licenses and Other Regulatory Services, Including Inspections and Import and Export Licenses

The licensing and inspection fees in this section, which are based on full-cost recovery, are modified to recover the FY 1996 costs incurred by the NRC in providing licensing and inspection services to identifiable recipients. The fees assessed for services provided under the schedule are based on both the professional hourly rate as shown in § 170.20 for the materials program and any direct program support (contractual services) costs expended by the NRC. Licensing fees based on the average time to review an application ("flat" fees) are adjusted to reflect the increase in the professional hourly rate from \$116 per hour in FY 1995 to \$120 per hour in FY 1996. The "flat" renewal fees for certain materials licenses in § 170.31 are eliminated and combined with the materials annual fees in § 171.16(d).

The amounts of the licensing "flat" fees were rounded off so that the amounts would be de minimis and the resulting flat fee would be convenient to the user. Fees that are greater than \$1,000 are rounded to the nearest \$100. Fees under \$1,000 are rounded to the nearest \$10.

Fee Category 15, covering the fees for export and import licenses, is amended to include clarifying language that export and import of materials includes the export and import of radioactive waste. The NRC amended 10 CFR Part 110 on July 21, 1995 (60 FR 37556), to require specific licenses for the export and import of radioactive waste. The final rule became effective August 21, 1995.

The licensing "flat" fees are applicable to fee categories 1.C and 1.D; 2.B and 2.C; 3.A through 3.P; 4.B through 9.D, 10.B, 15.A through 15.E and 16. Applications filed on or after the effective date of the final rule are subject to the revised fees in this final rule. Although the average amounts of time needed to review licensing applications have not changed, the "flat" fees in § 170.31 have increased from FY 1995 as a result of the increase in the hourly rate.

For those licensing, inspection, and review fees that are based on full-cost recovery (cost for professional staff hours plus any contractual services), the materials program hourly rate of \$120,

as shown in § 170.20, applies to those professional staff hours expended on or after the effective date of the final rule.

Part 171

Section 171.15 Annual Fee: Reactor Operating Licenses

The annual fees in this section are revised as described below. Paragraph (d) is removed and reserved and paragraphs (a), (b), (c)(1), (c)(2) and (e) are revised to comply with the requirement of OBRA-90 that the NRC recover approximately 100 percent of its budget for FY 1996.

Paragraph (b) is revised in its entirety to establish the FY 1996 annual fee for operating power reactors and to change fiscal year references from FY 1995 to FY 1996. The fees are established by reducing FY 1995 annual fees (prior to rounding) by 6.5 percent. The activities comprising the base FY 1995 annual fee and the FY 1995 additional charge (surcharge) are listed in paragraphs (b) and (c) and continue to be shown for convenience purposes. Paragraphs (c)(1) is revised in its entirety and (c)(2) is removed and reserved.

With respect to Big Rock Point, a smaller, older reactor, the NRC hereby grants a partial exemption from the FY 1996 annual fees similar to FY 1995 based on a request filed with the NRC in accordance with § 171.11.

Each operating power reactor, except Big Rock Point, will pay an annual fee of \$2,746,000 in FY 1996.

Paragraph (d) is removed and reserved.

Paragraph (e) is revised to show the amount of the FY 1996 annual fee for nonpower (test and research) reactors. In FY 1996, the annual fee of \$52,800 is 6.5 percent below the FY 1995 level. The Energy Policy Act of 1992 established an exemption for certain Federally-owned research reactors that are used primarily for educational training and academic research purposes, where the design of the reactor satisfies certain technical specifications set forth in the legislation. Consistent with this legislative requirement, the NRC granted an exemption from annual fees for FY 1992 and FY 1993 to the Veterans Administration Medical Center in Omaha, Nebraska, the U.S. Geological Survey for its reactor in Denver, Colorado, and the Armed Forces Radiobiological Institute in Bethesda, Maryland, for its research reactor. This exemption was initially codified in the July 20, 1993 (58 FR 38695) final fee rule at § 171.11(a) and more recently in the March 17, 1994 (59 FR 12543) final rule at § 171.11(a)(2). The NRC amended

§ 171.11(a)(2) on July 20, 1994 (59 FR 36895) to exempt from annual fees the research reactor owned by the Rhode Island Atomic Energy Commission. The NRC will continue to grant exemptions from the annual fee to Federally-owned and State-owned research and test reactors that meet the exemption criteria specified in § 171.11.

Section 171.16 Annual Fees: Materials Licensees, Holders of Certificates of Compliance, Holders of Sealed Source and Device Registrations, Holders of Quality Assurance Program Approvals, and Government Agencies Licensed by the NRC

Section 171.16(c) covers the fees assessed for those licensees that can qualify as small entities under NRC size standards. The NRC will continue to assess two fees for licensees that qualify as small entities under the NRC's size standards. In general, licensees with gross annual receipts of \$350,000 to \$5 million pay a maximum fee of \$1,800. A second or lower-tier small entity fee of \$400 is in place for small entities with gross annual receipts of less than \$350,000 and small governmental jurisdictions with a population of less than 20,000. No change in the amount of the small entity fees is being made because the small entity fees are not based on the budget but are established at a level to reduce the impact of fees on small entities. The small entity fees are shown in this final rule for convenience.

Section 171.16(d) is revised to establish the FY 1996 annual fees for materials licensees, including Government agencies, licensed by the NRC. These fees were determined by reducing the FY 1995 annual fees (prior to rounding) by 6.5 percent.

For the first time, the NRC is combining the "flat" material renewal fees in 10 CFR Part 170 with the annual fees in 10 CFR Part 171. As described in the Federal Register on September 8, 1995 (60 FR 46784), recent NRC internal reviews and regulatory impact surveys of materials licensees have highlighted areas in which the current materials licensing process can be improved. The NRC has completed the preliminary phases of its Business Process Reengineering (BPR) initiative to redesign the process of licensing medical, academic, and industrial users of byproduct materials as well as with regard to some small scope users of source and special nuclear materials. The NRC has extended, by rulemaking, certain specific materials licenses by five years from the current expiration dates of those licenses. Resources that would have otherwise been used to

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renew these licenses would be devoted to the BPR project. The NRC is also examining whether to permanently change the license duration for materials licenses. The NRC estimates that approximately 80 percent of its approximately 6,500 materials licenses will be extended by the final rulemaking published in the **Federal Register** January 20, 1996 (60 FR 1109). Consistent with this change in license renewals, the NRC is, for fee purposes, combining the materials "flat" renewal fees in 10 CFR Part 170 with the annual fees in 10 CFR Part 171.

This action also recognizes that the NRC's "regulatory service" provided to licensees, as referred to in OBRA-90, is comprised of the total regulatory activities that the NRC determines are needed to regulate a class of licensees. These regulatory activities include not only "flat" fee inspections but also research, rulemaking, orders, enforcement actions, responses to allegations, incident investigations, and other activities necessary to regulate classes of licensees. In addition to being consistent with the regulatory service concept of OBRA-90, the NRC believes that materials licensees' "flat" renewal fees can be combined with their annual fees without creating any significant questions of fairness. This is because the concept of the annual fee, including the renewal fee, has, in effect, already been implemented for most materials licensees. First, materials licensees currently pay a "flat fee" per renewal based on the average cost of a renewal for their fee category, and second, the renewal term of five years is identical for most materials licensees. Thus, licensees in the same materials license fee category already pay essentially the same average annual cost for renewals. Further, the average cost will decrease to a relatively small amount as a result of the five-year extension and potential change in license duration. Therefore, combining renewal and annual fees results in essentially the same average cost per license over time. This approach will provide materials licensees with simpler and more predictable NRC fee charges as there will be no additional fees paid for periodic renewals. Because certain materials FY 1996 annual fees will include renewals, those materials licensees who paid a "flat" 10 CFR Part 170 renewal fee for renewal applications filed in FY 1996 will be issued a refund, as appropriate.

Beginning in FY 1996, the NRC will also bill annual fees for most materials licenses on the anniversary date of the license (licensees whose annual fees are \$100,000 or more will continue to be

assessed quarterly). The annual fee assessed will be the fee in effect on the license anniversary date. This final rule will apply to those materials licenses in the following fee categories: 1.C. and 1.D.; 2.A.(2) through 2.C.; 3.A. through 3.P.; 4.A. through 9.D., and 10.B. Billing most materials licenses on the anniversary date of the license will allow the NRC to improve the efficiency of its billing process; under this final rule an average of approximately 500 annual fee invoices will be sent to materials licensees each month. The current practice of billing over 6,000 materials licensees simultaneously each fiscal year is eliminated. For annual fee purposes, the anniversary date of the materials license is considered to be the first day of the month in which the original materials license was issued. For example, if the original materials license was issued on June 17 then, for annual fee purposes, the anniversary date of the materials license is June 1 and the licensee will be billed in June of each year for the annual fee in effect on June 1. This final change to the billing system means that during the transition period of FY 1996 affected materials licensees with an anniversary date falling between October 1, 1995, and the effective date of the FY 1996 fee rule will receive a bill payable on the effective date of the FY 1996 final rule. Affected materials licensees with license anniversary dates falling on or after the effective date of the FY 1996 final rule will be billed during their anniversary month of their license. Under this final rule, some materials licensees will unavoidably receive two annual fee bills during the 12 month transition period. For example, a materials licensee who paid its FY 1996 annual fee bill in May 1996, the planned effective date of the FY 1996 fee rule, will receive a bill six months later in November 1996 (FY 1997) if November is the anniversary month of that materials license. In this example, the licensee will pay the same annual fee in FY 1997 (November) as he paid in FY 1996 (May). Materials licensees will continue to pay fees at the FY 1996 rate in FY 1997 until such time as the FY 1997 final fee rule becomes effective. Each bill would be for a different fiscal year, therefore, no double billing would occur.

The NRC believes that the efficiencies gained by billing certain materials annual fees throughout the year as well as having materials licensees know exactly when they will be billed each year for the annual fee outweigh the inconveniences that may be caused during the transition period. New

licenses issued during FY 1996 will receive a prorated annual fee in accordance with the current proration provision of § 171.17. For example, those new materials licenses issued during the period October 1 through March 31 of the FY will be assessed one-half the annual fee for FY 1996. New materials licenses issued on or after April 1, 1996, will not be assessed an annual fee for FY 1996. Thereafter, the full annual fee is due and payable each subsequent fiscal year on the anniversary date of the license. Beginning with the effective date of this FY 1996 final rule, affected licensees will be billed and will pay the annual fee in effect on the anniversary date of the license. Affected licensees who are not sure of the anniversary date of their materials license should check the original issue date of the license.

A materials licensee may pay a reduced annual fee if the licensee qualifies as a small entity under the NRC's size standards and certifies that it is a small entity using NRC Form 526.

The amount or range of the FY 1996 annual fees for all materials licensees is summarized as follows:

MATERIALS LICENSES—ANNUAL FEE RANGES

Category of license	Annual fees
Part 70—High enriched fuel facility.	\$2,403,000.
Part 70—Low enriched fuel facility.	1,179,000.
Part 40—UF ₆ conversion facility.	597,800.
Part 40—Uranium recovery facilities.	20,600 to 57,000.
Part 30—Byproduct Material Licenses.	450 to 21,700. ¹
Part 71—Transportation of Radioactive Material.	950 to 72,700.
Part 72—Independent Storage of Spent Nuclear Fuel.	260,900.

¹ Excludes the annual fee for a few military "master" materials licenses of broad-scope issued to Government agencies, which is \$388,400.

Section 171.16(e) is revised in its entirety to indicate the activities that were a part of the additional charge (surcharge) included in the FY 1995 annual fees. These activities are listed and continue to be shown for convenience.

Footnote 1 of 10 CFR 171.16(d) is amended to provide a waiver of the annual fees for materials licensees, and holders of certificates, registrations, and approvals, who either filed for termination of their licenses or approvals or filed for possession only/

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storage only licenses before October 1, 1995, and permanently ceased licensed activities entirely by September 30, 1995. All other licensees and approval holders who held a license or approval on October 1, 1995, are subject to the FY 1996 annual fees.

Section 171.19 Payment

Paragraph (b) is revised to give credit for partial payments made by certain licensees in FY 1996 toward their FY 1996 annual fees. The NRC anticipates that the first, second, and third quarterly payments for FY 1996 will have been made by operating power reactor licensees and some large materials licensees before this final rule is effective. Therefore, the NRC will credit payments received for those quarterly annual fee assessments toward the total annual fee to be assessed. The NRC will adjust the fourth quarterly bill to recover the full amount of the revised annual fee or to make refunds, as necessary. The NRC also expects that certain materials licensees will have paid renewal fees for renewal applications that were filed in FY 1996, whereas this final rule includes the renewals in the annual fee. The NRC will refund these renewal fee payments, as appropriate. Payment of the annual fee is due on the date of the invoice and interest accrues from the invoice date. However, interest will be waived if payment is received within 30 days from the invoice date.

Paragraph (c) is revised to update fiscal year references and to delete the references concerning payment requirements for those licensees whose annual fees are less than \$100,000.

A new paragraph (d) is added to cover those licensees whose annual fees are less than \$100,000 and who will be billed on the anniversary date of their license beginning in FY 1996.

During the past five years many licensees have indicated that, although they held a valid NRC license authorizing the possession and use of special nuclear, source, or byproduct material, they were either not using the material to conduct operations or had disposed of the material and no longer needed the license. In response, the NRC has consistently stated that annual fees are assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. Whether or not a licensee is actually conducting operations using the material is a matter of licensee discretion. The NRC cannot control whether a licensee elects to possess and use radioactive material once it receives a license from the NRC. Therefore, the NRC reemphasizes that

the annual fee will be assessed based on whether a licensee holds a valid NRC license that authorizes possession and use of radioactive material. To remove any uncertainty, the NRC issued minor clarifying amendments to 10 CFR 171.16, footnotes 1 and 7 on July 20, 1993 (58 FR 38700).

The NRC reinstated the exemption from 10 CFR Part 171 annual fees for nonprofit educational institutions on April 18, 1994 (59 FR 12539; March 17, 1994). In that final rule, the NRC indicated that although nonprofit research institutions were not exempt from annual fees, such institutions were free to file an exemption request based on the "public good" concept if they felt they could qualify. Several nonprofit research institutions have since filed and been granted an exemption from the annual fees on that basis. In addition, some Federal agencies who hold materials licenses have filed for exemption from annual fees based on the public good concept as well. The requests from Federal agencies to receive public good exemptions have been denied by the NRC. The NRC did not intend to extend public good exemptions to Federal agencies.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for the final regulation. By its very nature, this regulatory action does not affect the environment, and therefore, no environmental justice issues are raised.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

VII. Regulatory Analysis

With respect to 10 CFR Part 170, this final rule was developed pursuant to Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701) and the Commission's fee guidelines. When developing these guidelines the Commission took into account guidance provided by the U.S. Supreme Court on March 4, 1974, in its decision of *National Cable Television Association, Inc. v. United States*, 415 U.S. 36 (1974) and *Federal Power Commission v. New England Power*

Company, 415 U.S. 345 (1974). In these decisions, the Court held that the IOAA authorizes an agency to charge fees for special benefits rendered to identifiable persons measured by the "value to the recipient" of the agency service. The meaning of the IOAA was further clarified on December 16, 1976, by four decisions of the U.S. Court of Appeals for the District of Columbia: *National Cable Television Association v. Federal Communications Commission*, 554 F.2d 1094 (D.C. Cir. 1976); *National Association of Broadcasters v. Federal Communications Commission*, 554 F.2d 1118 (D.C. Cir. 1976); *Electronic Industries Association v. Federal Communications Commission*, 554 F.2d 1109 (D.C. Cir. 1976) and *Capital Cities Communication, Inc. v. Federal Communications Commission*, 554 F.2d 1135 (D.C. Cir. 1976). These decisions of the Courts enabled the Commission to develop fee guidelines that are still used for cost recovery and fee development purposes.

The Commission's fee guidelines were upheld on August 24, 1979, by the U.S. Court of Appeals for the Fifth Circuit in *Mississippi Power and Light Co. v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979), cert. denied, 444 U.S. 1102 (1980). The Court held that—

- (1) The NRC had the authority to recover the full cost of providing services to identifiable beneficiaries;
- (2) The NRC could properly assess a fee for the costs of providing routine inspections necessary to ensure a licensee's compliance with the Atomic Energy Act and with applicable regulations;
- (3) The NRC could charge for costs incurred in conducting environmental reviews required by NEPA;
- (4) The NRC properly included the costs of uncontested hearings and of administrative and technical support services in the fee schedule;
- (5) The NRC could assess a fee for renewing a license to operate a low-level radioactive waste burial site; and
- (6) The NRC's fees were not arbitrary or capricious.

With respect to 10 CFR Part 171, on November 5, 1990, the Congress passed Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90) which required that for FYs 1991 through 1995, approximately 100 percent of the NRC budget authority be recovered through the assessment of fees. OBRA-90 was amended in 1993 to extend the 100 percent fee recovery requirement for NRC through FY 1998. To accomplish this statutory requirement, the NRC, in accordance with § 171.13, is publishing the final

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amount of the FY 1996 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. OBRA-90 and the Conference Committee Report specifically state that—

(1) The annual fees be based on the Commission's FY 1996 budget of \$473.3 million less the amounts collected from Part 170 fees and the funds directly appropriated from the NWF to cover the NRC's high level waste program;

(2) The annual fees shall, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and

(3) The annual fees be assessed to those licensees the Commission, in its discretion, determines can fairly, equitably, and practicably contribute to their payment.

10 CFR Part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (D.C. Cir. 1988), cert. denied, 490 U.S. 1045 (1989).

The NRC's FY 1991 annual fee rule was largely upheld by the D.C. Circuit Court of Appeals in *Allied Signal v. NRC*, 988 F.2d 146 (D.C. Cir. 1993).

VIII. Regulatory Flexibility Analysis

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority through the assessment of user fees. OBRA-90 further requires that the NRC establish a schedule of charges that fairly and equitably allocates the aggregate amount of these charges among licensees.

This final rule establishes the schedules of fees that are necessary to implement the Congressional mandate for FY 1996. The final rule results in a decrease in the annual fees charged to all licensees, and holders of certificates, registrations, and approvals. The Regulatory Flexibility Analysis, prepared in accordance with 5 U.S.C. 604, is included as Appendix A to this final rule.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these final amendments do not require the modification of or additions to systems, structures, components, or the design of a facility or the design

approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects

10 CFR Part 170

Byproduct material, Import and export licenses, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, registrations, approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 170 and 171.

agency cannot certify that a rule will not significantly impact a substantial number of small entities, then a regulatory flexibility analysis is required to examine the impacts on small entities and the alternatives to minimize these impacts.

To assist in considering these impacts under the Regulatory Flexibility Act (RFA), first the NRC adopted size standards for determining which NRC licensees qualify as small entities (50 FR 50241; December 9, 1985). These size standards were clarified November 6, 1991 (56 FR 56672). On April 7, 1994 (59 FR 16513), the Small Business Administration (SBA) issued a final rule changing its size standards. The SBA adjusted its receipts-based size standards levels to mitigate the effects of inflation from 1984 to 1994. On November 30, 1994 (59 FR 61293), the NRC published a proposed rule to amend its size standards. After evaluating the two comments received, a final rule that would revise the NRC's size standards as proposed was developed and approved by the SBA on March 24, 1995. The NRC published the final rule revising its size standards on April 11, 1995 (60 FR 18344). The revised standards became effective May 11, 1995. The revised standards adjusted the NRC receipts-based size standards from \$3.5 million to \$5 million to accommodate inflation and to conform to the SBA final rule. The NRC also eliminated the separate \$1 million size standard for private practice physicians and applied a receipts-based size standard of \$5 million to this class of licensees. This mirrored the revised SBA standard of \$5 million for medical practitioners. The NRC also established a size standard of 500 or fewer employees for business concerns that are manufacturing entities. This standard is the most commonly used SBA employee standard and is the standard applicable to the types of manufacturing industries that hold an NRC license.

The NRC used the revised standards in the final FY 1995 fee rule and is using them in this FY 1996 final rule. The small entity fee categories in § 171.16(c) of this final rule reflect the changes in the NRC's size standards adopted in FY 1995. A new maximum small entity fee for manufacturing industries with 35 to 500 employees was established at \$1,800 and a lower-tier small entity fee of \$400 was established for those manufacturing industries with less than 35 employees. The lower-tier receipts-based threshold of \$250,000 was raised to \$350,000 to reflect approximately the same percentage adjustment as that made by the SBA when they adjusted

Appendix A to This Final Rule Regulatory Flexibility Analysis For the Amendments to 10 CFR Part 170 (License Fees) and 10 CFR Part 171 (Annual Fees)

I. Background

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) establishes as a principle of regulatory practice that agencies endeavor to fit regulatory and informational requirements, consistent with applicable statutes, to a scale commensurate with the businesses, organizations, and government jurisdictions to which they apply. To achieve this principle, the Act requires that agencies consider the impact of their actions on small entities. If the

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the receipts-based standard from \$3.5 million to \$5 million. The NRC believes that continuing these actions for FY 1996 will reduce the impact of annual fees on small businesses. The NRC size standards are codified at 10 CFR 2.810.

Public Law 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90), requires that the NRC recover approximately 100 percent of its budget authority, less appropriations from the Nuclear Waste Fund, for Fiscal Years (FY) 1991 through 1995 by assessing license and annual fees. OBRA-90 was amended in 1993 to extend the 100 percent recovery requirement for NRC through 1998. For FY 1991, the amount for collection was approximately \$445.3 million; for FY 1992, approximately \$492.5 million; for FY 1993 about \$518.9 million; for FY 1994 about \$513 million; for FY 1995 about \$503.6 million and the amount to be collected in FY 1996 is approximately \$462.3 million.

To comply with OBRA-90, the Commission amended its fee regulations in 10 CFR Parts 170 and 171 in FY 1991 (56 FR 31472; July 10, 1991) in FY 1992, (57 FR 32691; July 23, 1992) in FY 1993 (58 FR 38666; July 20, 1993) in FY 1994 (59 FR 36895; July 20, 1994) and in FY 1995 (60 FR 32218; June 20, 1995) based on a careful evaluation of over 1,000 comments. These final rules established the methodology used by NRC in identifying and determining the fees assessed and collected in FYs 1991-1995.

The NRC indicated in the FY 1995 final rule that it would attempt to stabilize annual fees as follows. Beginning in FY 1996, it would adjust the annual fees only by the percentage change (plus or minus) in NRC's total budget authority unless there was a substantial change in the total NRC budget authority or the magnitude of the budget allocated to a specific class of licensees, in which case the annual fee base would be recalculated (60 FR 32225; June 20, 1995). The NRC also indicated that the percentage change would be adjusted based on changes in the 10 CFR Part 170 fees and other receipts as well as an adjustment for the number of licensees paying the fees. As a result, the NRC is establishing the FY 1996 annual fees for all licensees at 6.5 percent below the FY 1995 annual fees. The NRC believes that the 6.5 percent downward adjustment to the FY 1995 annual fees is not a substantial enough change to warrant establishing a new baseline for FY 1996.

The NRC is also continuing to streamline the fee structure and process for materials licenses, efforts which

began in FY 1995. Two changes are being made in this area.

First, the NRC will assess annual fees for certain materials licenses on the anniversary date of the license. Billing certain materials licenses on the anniversary date of the license will allow NRC to make improved efficiencies in the billing process, whereby approximately 500 annual fee invoices will be sent to materials licensees each month. The current practice of billing over 6,000 materials licensees at the same time in the fiscal year is eliminated. The NRC believes that the efficiencies gained by billing certain materials annual fees on a monthly basis as well as materials licensees knowing exactly when they will be billed each year for the annual fee outweigh the inconveniences that may be caused during the FY 1996 transition period.

Second, the NRC is further streamlining the materials fee program and improving the predictability of fees by eliminating the materials "flat" renewal fees in § 170.31. This action is consistent with the NRC's recent Business Process Reengineering initiative to extend the duration of certain materials licenses. The NRC published a proposed rule explaining this initiative in the *Federal Register* on September 8, 1995, (60 FR 46784). In the proposed rule, certain materials licenses would be extended for five years beyond their expiration date. Additionally, comments were requested on the general topic of the appropriate duration of licenses. A final rule was published in the *Federal Register* on January 16, 1996 (61 FR 1109).

II. Impact on Small Entities

The comments received on the proposed FY 1991-1995 fee rule revisions and the small entity certifications received in response to the final FY 1991-1995 fee rules indicate that NRC licensees qualifying as small entities under the NRC's size standards are primarily those licensed under the NRC's materials program. Therefore, this analysis will focus on the economic impact of the annual fees on materials licensees.

The Commission's fee regulations result in substantial fees being charged to those individuals, organizations, and companies that are licensed under the NRC materials program. Of these materials licensees, about 18 percent (approximately 1,300 licensees) have requested small entity certification in the past. In FY 1993, the NRC conducted a survey of its materials licensees. The results of this survey indicated that about 25 percent of these

licensees could qualify as small entities under the current NRC size standards.

The commenters on the FY 1991-1994 proposed fee rules indicated the following results if the proposed annual fees were not modified:

- Large firms would gain an unfair competitive advantage over small entities. One commenter noted that a small well-logging company (a "Mom and Pop" type of operation) would find it difficult to absorb the annual fee, while a large corporation would find it easier. Another commenter noted that the fee increase could be more easily absorbed by a high-volume nuclear medicine clinic. A gauge licensee noted that, in the very competitive soils testing market, the annual fees would put it at an extreme disadvantage with its much larger competitors because the proposed fees would be the same for a two-person licensee as for a large firm with thousands of employees.
- Some firms would be forced to cancel their licenses. One commenter, with receipts of less than \$500,000 per year, stated that the proposed rule would, in effect, force it to relinquish its soil density gauge and license, thereby reducing its ability to do its work effectively. Another commenter noted that the rule would force the company and many other small businesses to get rid of the materials license altogether. Commenters stated that the proposed rule would result in about 10 percent of the well-logging licensees terminating their licenses immediately and approximately 25 percent terminating their licenses before the next annual assessment.
- Some companies would go out of business. One commenter noted that the proposal would put it, and several other small companies, out of business or, at the very least, make it hard to survive.
- Some companies would have budget problems. Many medical licensees commented that, in these times of slashed reimbursements, the proposed increase of the existing fees and the introduction of additional fees would significantly affect their budgets. Another noted that, in view of the cuts by Medicare and other third party carriers, the fees would produce a hardship and some facilities would experience a great deal of difficulty in meeting this additional burden.

Over the past five years, approximately 2,900 license, approval, and registration terminations have been requested. Although some of these terminations were requested because the license was no longer needed or licenses

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or registrations could be combined, indications are that other termination requests were due to the economic impact of the fees.

The NRC continues to receive written and oral comments from small materials licensees. These commenters previously indicated that the \$3.5 million threshold for small entities was not representative of small businesses with gross receipts in the thousands of dollars. These commenters believe that the \$1,800 maximum annual fee represents a relatively high percentage of gross annual receipts for these "Mom and Pop" type businesses. Therefore, even the reduced annual fee could have a significant impact on the ability of these types of businesses to continue to operate.

To alleviate the continuing significant impact of the annual fees on a substantial number of small entities, the NRC considered alternatives, in accordance with the RFA. These alternatives were evaluated in the FY 1991 rule (56 FR 31472; July 10, 1991) in the FY 1992 rule (57 FR 32691; July 23, 1992), in the FY 1993 rule (58 FR 38666; July 20, 1993); in the FY 1994 rule (59 FR 36895; July 20, 1994) and in the FY 1995 rule (60 FR 32218; June 20, 1995). The alternatives considered by the NRC can be summarized as follows.

- Base fees on some measure of the amount of radioactivity possessed by the licensee (e.g., number of sources).
- Base fees on the frequency of use of the licensed radioactive material (e.g., volume of patients).
- Base fees on the NRC size standards for small entities.

The NRC has reexamined the FY 1991–1995 evaluations of these alternatives. Based on that reexamination, the NRC continues to believe that establishment of a maximum fee for small entities is the most appropriate option to reduce the impact on small entities.

The NRC established, and is continuing for FY 1996, a maximum annual fee for small entities. The RFA and its implementing guidance do not provide specific guidelines on what constitutes a significant economic impact on a small entity. Therefore, the NRC has no benchmark to assist it in determining the amount or the percent of gross receipts that should be charged to a small entity. For FY 1996, the NRC will rely on the analysis previously completed that established a maximum annual fee for a small entity and the amount of costs that must be recovered from other NRC licensees as a result of establishing the maximum annual fees.

The NRC continues to believe that the 10 CFR Part 170 license fees

(application and amendment), or any adjustments to these licensing fees during the past year, do not have a significant impact on small entities. In issuing this final rule for FY 1996, the NRC concludes that the 10 CFR Part 170 materials license fees do not have a significant impact on a substantial number of small entities and that the 10 CFR Part 171 maximum annual small entity fee of \$1,800 be continued.

By maintaining the maximum annual fee for small entities at \$1,800, the annual fee for many small entities is reduced while at the same time materials licensees, including small entities, pay for most of the FY 1996 costs attributable to them. The costs not recovered from small entities are allocated to other materials licensees and to operating power reactors. However, the amount that must be recovered from other licensees as a result of maintaining the maximum annual fee is not expected to increase. Therefore, the NRC is continuing, for FY 1996, the maximum annual fee (base annual fee plus surcharge) for certain small entities at \$1,800 for each fee category covered by each license issued to a small entity.

While reducing the impact on many small entities, the Commission agrees that the maximum annual fee of \$1,800 for small entities, when added to the Part 170 license fees, may continue to have a significant impact on materials licensees with annual gross receipts in the thousands of dollars. Therefore, as in FY 1992–1995, the NRC is continuing the lower-tier small entity annual fee of \$400 for small entities with relatively low gross annual receipts. The lower-tier small entity fee of \$400 also applies to manufacturing concerns, and educational institutions not State or publicly supported, with less than 35 employees. This lower-tier small entity fee was first established in the final rule published in the *Federal Register* on April 17, 1992 (57 FR 13625) and now includes manufacturing companies with a relatively small number of employees.

III. Summary

The NRC has determined the 10 CFR Part 171 annual fees significantly impacts a substantial number of small entities. A maximum fee for small entities strikes a balance between the requirement to collect 100 percent of the NRC budget and the requirement to consider means of reducing the impact of the fee on small entities. On the basis of its regulatory flexibility analyses, the NRC concludes that a maximum annual fee of \$1,800 for small entities and a lower-tier small entity annual fee of \$400 for small businesses and not-for-

profit organizations with gross annual receipts of less than \$350,000, small governmental jurisdictions with a population of less than 20,000, small manufacturing entities that have less than 35 employees and educational institutions that are not State or publicly supported and have less than 35 employees reduces the impact on small entities. At the same time, these reduced annual fees are consistent with the objectives of OBRA–90. Thus, the revised fees for small entities maintain a balance between the objectives of OBRA–90 and the RFA. Therefore, the analysis and conclusions established in the FY 1991–1995 rules remain valid for this final rule for FY 1996.

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS—ENERGY

PART 171

ANNUAL FEES FOR REACTOR OPERATING LICENSES, AND FUEL CYCLE LICENSES AND MATERIALS LICENSES, INCLUDING HOLDERS OF CERTIFICATES OF COMPLIANCE, REGISTRATIONS, AND QUALITY ASSURANCE PROGRAM APPROVALS AND GOVERNMENT AGENCIES LICENSED BY NRC

STATEMENTS OF CONSIDERATION

53 FR 30423
Published 8/12/88
Effective 9/12/88

10 CFR Part 171

Revision of Fee Schedule

AGENCY: Nuclear Regulatory Commission.

ACTION: Interim rule.

SUMMARY: The NRC is amending its regulations, on an interim basis, to revise the annual charges for licensed power reactors for Fiscal Year 1988 (FY88). The interim rule raises the ceiling on collection of annual fees to an amount that will approximate, but not be less than 45 percent of the Commission's budget. The increase of 12 percent will be apportioned among the licensed power reactors in the same manner as under the current fee schedule regulations. This action is necessary to provide for the timely collection of fees as required by recently enacted legislation.

EFFECTIVE DATE: September 12, 1988.

FOR FURTHER INFORMATION CONTACT: Lee Hiller, Assistant Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7351.

SUPPLEMENTARY INFORMATION: On June 27, 1988, the NRC published in the *Federal Register* (53 FR 24077) a proposed rule that would amend its regulations in 10 CFR Parts 170 and 171. This revision is necessary to both update the current fees and to implement recently enacted legislation. The proposed amendments would: Change the hourly rate under Part 170; remove fee ceilings on certain collections under Part 170; charge for each routine and nonroutine inspection; raise the annual fee under Part 171 when necessary, based on the principle that those licensees requiring the greatest expenditure of resources should pay the greatest fee; include collections from the Department of Energy Nuclear Waste Fund in agency collections; remove the application fee and defer recovery of costs for standardized reactor designs, and remove amendment application filing fees for reactors and reactor-related (topical) reports. Most of these proposals are intended to help the NRC meet its statutorily mandated requirement to recover not less than 45

percent of its budget for each of fiscal years 1988 and 1989 through fees and other collections authorized by law. The increase in collections from 33 percent of the NRC's budget to not less than 45 percent is mandated by section 5601 of the Omnibus Budget Reconciliation Act of 1987 (OBRA-Pub. L. 100-203).

In its *Federal Register* notice on proposed amendments to 10 CFR Parts 170 and 171, the Commission requested comments on a second option for recovery of not less than 45 percent of its budget. Under that option, the Commission would not amend 10 CFR Parts 170 and 171 other than to raise the annual fee under 10 CFR Part 171 so that when added to fees collected under 10 CFR Part 170, the Commission would collect not less than 45 percent of its budget in FY88.

Several comments were received which addressed the option. They were divided about equally between those in favor and those opposed. Generally the power reactor community was opposed to the second option on the ground that it increased the annual fee for power reactors without any commensurate sharing of the mandated increase in collections to 45 percent by other licensees and applicants. On the other hand, materials licensees favored the second option for the reason that it did not increase their burden. Two power reactor licensees favored the second option, one of them as an interim measure. The bulk of the power reactor community, in opposing the second option, appeared to be viewing it as a long term option and not as a stopgap measure to meet the immediate statutory directive for collections for fiscal year 1988. In view of the balance of the comments, the Commission will not pursue the second option for fiscal year 1989 and beyond, but will proceed with amendments to both 10 CFR Parts 170 and 171. The comments do not, however, present a persuasive argument for not proceeding with the second option for fiscal year 1988 collections.

Commenters also addressed the issue of refunds for overpayment of annual fees under 10 CFR Part 171. The only comments received were from the power reactor community and are based upon reading the language in section 5601 of OBRA as imposing a 45 percent ceiling on the collections in a fiscal year. In the view of the Commission, reading the 45 percent as a ceiling is contrary to the

plain language and clear meaning of the statute which requires that, "in no event shall such percentage be less than a total of 45 percent of such costs in each such fiscal year." Although the statute presents some problems of interpretation, this is not one of them. The 45 percent is clearly a floor, not a ceiling. Accordingly, the provision for refunds is removed in this interim rule. It is the intention of the Commission, however, that collections of fees for fiscal year 1988 should exceed 45 percent by only a trivial amount, if at all.

The NRC is under statutory mandate, which it cannot ignore, to collect approximately, but not less than 45 percent of its budget for FY88. Given the time necessary to review all comments, to publish a final rule, and to send out additional invoices so that collections will be received prior to the end of the fiscal year, the Commission is publishing the second option as an interim rule applicable to FY88, effective 30 days after publication. Because the Commission has received and considered public comments on the two aspects of 10 CFR Part 171 being changed by this interim final rule, there is no need to request further public comment. Accordingly, the rule is being published as a final rule without a separate and independent comment period.

The adjusted invoices based on this interim rule will be sent to licensees on approximately August 15, 1988, after the rule is published in the *Federal Register*. These invoices will be due and payable upon issuance. In accordance with current regulations, interest on the invoices will be waived if the invoices are paid within 30 days of their issuance. Licensees were notified with their April and July quarterly invoices under 10 CFR Part 171 that there would be an additional invoice, based on the new statute, in FY88.

Adoption of the second option for FY88 requires that § 171.15 be amended to reflect collections of not less than 45 percent instead of the current 33 percent ceiling on total fee collections. This interim rule will apply only to FY88 and will be superseded by a final rule after the Commission fully considers comments it received in response to its purposed revision of 10 CFR Parts 170 and 171 published in the *Federal*

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Register on June 27, 1988. The final rule will apply to fees for FY89.

In order to comply with OBRA, the Commission is required to collect \$177 million in FY88. Based on current estimated collections under 10 CFR Part 170 of \$41.3 million and anticipated total collections under 10 CFR Part 171 of \$99.5 million, the Commission must collect an additional \$36.2 million in order to reach the collections objective. Accordingly, the FY88 annual fee adjustment is \$350,000 for each licensed power reactor. The annual fees for those plants previously granted a partial exemption for FY88 pursuant to § 171.11 will be increased in a like manner using the percentage rate used for the exemptions. Those plants totally exempted from the annual fee for FY88 are unaffected by this amendment.

The NRC's reading of the 45 percent legislative statute [section 5601 of the Omnibus Budget Reconciliation Act of 1987—Pub. L. 100-203] is that 45 percent does not represent a ceiling. Congress intended collections to be not less than 45 percent of the NRC's budgets for FY88 and FY89. Therefore, actual collections will approximate but be at least 45 percent of the Commission's budget. On this basis, the current refund provision of 10 CFR 171.21 is no longer necessary and is being removed.

Environmental Impact: Categorical Exclusion

The NRC has determined that this interim rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This interim rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980, as amended (44 U.S.C. 3501 *et seq.*).

Regulatory Analysis

Section 7601 of the Consolidated Omnibus Budget Reconciliation Act (COBRA) required the NRC, by rule, to establish an annual charge for regulatory services provided to its applicants and licensees, that when added to other amounts collected, equaled up to 33 percent of Commission costs in providing those services. Section 5601 of the Omnibus Budget Reconciliation Act of 1987 requires that the NRC, for the fiscal years 1988 and 1989, increase the moneys collected pursuant to section 7601 and other authority to not less than 45 percent of the Commission's costs. In order to accomplish this statutory requirement, the NRC, as an interim measure, is

amending 10 CFR 171.15 (c) and (d) by revising the figure 33 percent to a target of 45 percent.

This interim rule will not have significant impacts on state and local governments and geographical regions; on health, safety, and the environment; or, create substantial costs to licensees, the NRC, or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this interim rule.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 650(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this interim rule and, therefore, that a backfit analysis is not required for this interim rule, because this amendment is mandated by 31 U.S.C. 9701 and 7601, Consolidated Omnibus Budget Reconciliation Act of 1985 (Pub. L. 99-272, 100 Stat. 146), as amended by section 5601, Omnibus Budget Reconciliation Act of 1987 (Pub. L. 100-203, 101 Stat. 1330).

List of Subjects in 10 CFR Part 171

Annual charges. Nuclear power plants and reactors. Penalty.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 171.

53 FR 43419
Published 10/27/88
Effective 10/27/88

Relocation of NRC's Public Document Room; Other Minor Nomenclature Changes

See Part 1 Statements of Consideration

53 FR 52632
Published 12/29/88
Effective 1/30/89

10 CFR Parts 170 and 171

Revision of Fee Schedules

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (Commission or NRC) is amending its regulations by revising its fee schedules contained in 10 CFR Parts 170 and 171. The revised fee schedules will result in those power reactor, fuel cycle facility and materials applicants and licensees requiring the greatest expenditure of NRC resources paying the greatest fees. This permits NRC to more completely recover under 10 CFR Part 170 costs incurred for identifiable services for power reactor, fuel cycle facility and major materials applicants and licensees. This action also implements fee legislation enacted by Congress in December 1987. All applicants and licensees currently subject to fees under 10 CFR Parts 170 and 171 are affected by this rule.

EFFECTIVE DATE: January 30, 1989.

ADDRESSES: Copies of the written public comments are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street NW., Washington, DC, in the lower level of the Gelman Building.

FOR FURTHER INFORMATION CONTACT: Lee Hiller, Assistant Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20055, Telephone: 301-492-7351.

SUPPLEMENTARY INFORMATION:

- I. Background
- II. Responses to Comments
- III. Changes Included in the Final Rules
- IV. Section-by-Section Analysis
- V. Environmental Impact: Categorical Exclusion
- VI. Paperwork Reduction Act Statement
- VII. Regulatory Analysis
- VIII. Regulatory Flexibility Certification
- IX. Backfit Analysis

I. Background

On June 27, 1988 (53 FR 24077-24093), the Commission published in the *Federal Register* a notice of proposed rulemaking for revisions to 10 CFR Part 170 ("Fees for Facilities and Materials Licensees and Other Regulatory Services * * *") and Part 171 ("Annual Fees for Power Reactor Operating Licenses"). This action was necessary for the Commission to update the current fee schedules in Part 170 and to implement the requirements of section 5601 of the Omnibus Budget Reconciliation Act of 1987, as signed into law on December 22, 1987 (Pub. L. 100-203). Section 5601 amended section 7601 of the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA—Pub. L. 99-272), which requires the Commission to collect annual charges from its licensees. As discussed in the notice of proposed rulemaking published on June 27, 1988, the amendment requires the NRC to collect under 10 CFR Parts 170 and 171, as well as under other provisions of law, not less than 45 percent of the Commission's budget for each of Fiscal Years 1988 and 1989 (Option 1).

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The proposed rule also sought comments on a second option to not change 10 CFR Part 170, but only raise the annual fees under 10 CFR Part 171 to reach the 45 percent mandate of Pub. L. 100-203 for FY 1988. On August 12, 1988, the Commission published an interim final rule for 10 CFR Part 171 (53 FR 30423) applicable to collections for FY 1988 based upon the second option. The interim rule increased collections from 33 percent to 45 percent of the Commission's FY 1988 budget. Adjusted invoices based on the interim rule were sent to reactor licensees on August 16, 1988.

As discussed in the interim rule, the Commission will proceed with option 1 rather than option 2 as a long-term rule for annual fees. The method for assessing annual fees in this final rule presents a more equitable distribution among the licensed nuclear power reactors of the amount needed to be collected by taking into account the kind of reactor, its location and other considerations in relation to the generic research and other costs associated with power reactor regulation. Under the revised rule, those who require the larger expenditure of NRC resources will pay the larger fees.

II. Responses to Comments

The Commission received thirty-two (32) letters commenting on the proposed rule. Twenty letters were from persons mainly concerned with Part 50 facilities and twelve commented on fees for materials licenses.

The comments fell into the following categories:

Part 170 Comments:

1. Removal of ceilings.
2. Removal of routine inspection frequencies.
3. Fees for standardized design review.
4. Disparity in certain materials fee categories.

Part 171 Comments:

1. Legality of fees.
2. Allocate costs to all persons.
3. Exclude costs serving an independent public benefit.
4. Base fees on specific identifiable services.
5. Exclude research until NRC acts on that research.
6. Include fines, penalties, and interest in fee collections.
7. Other Comments.

The Commission's responses to the comments are as follows:

Comments on Part 170

1. Removal of ceilings for reactor and major fuel cycle permits, licenses, amendments, reactor related topical reports and services; and for transportation cask packages and

shipping containers. Commenters' main concern about the removal of ceilings for applications and other services is that it removes the predictability of costs for budgeting purposes. In the area of topical reports, commenters were concerned that it would discourage participation in the topical report program as well as defeat the overall objective of encouraging new and improved predictive models and products.

Response: Ceilings are being removed because the Commission strongly supports the concept that those requiring the greatest expenditure of NRC resources should pay the greatest fees. Ceilings contradict that objective. Appendices A and B that were included in the proposed rule of June 27, 1988 (53 FR 24092 and 24093), are non-binding schedules of estimated fees which may still be used for planning purposes in the absence of ceilings and provide adequate information for planning purposes. The upper range in these schedules would only be increased slightly for FY 1989 as a result of using FY 1989 budget costs which changed the hourly rate from \$80 (based on FY 1988 budget) to \$86 for FY 1989. With respect to topical report reviews, the Commission finds no compelling argument to justify retaining a ceiling since those who request reviews of topical reports that require considerable staff work should bear their share of the review costs. The Commission recognizes, however, that there may be some topical reports that are of particular importance and use to the NRC. Therefore, as a matter of agency policy, the NRC may, upon its own initiative or at the request of the applicant, exempt all or part of the topical report fee pursuant to § 170.11(b)(1).

2. Removal of routine inspection frequency. Most materials commenters are concerned that the removal of the frequency for routine inspections will take away their ability to predict what they should budget for inspection fees and create a potential for more frequent inspections than are needed.

Response: The Commission's routine inspection program is a structured program to assure that licensees comply with their license conditions and Commission regulations and standards to the extent that the health and safety of the company employees and public are not endangered. As long as a licensee's operations are in compliance with the NRC-issued license, regulations, and standards, the frequency of inspections is not generally expected to be more frequent than what was stipulated in the previous regulation. Therefore, from a budgeting standpoint, if a licensee operates in conformance with its license and the Commission's regulations and standards, the predictability for

inspection fee budget costs remains essentially unchanged.

3. Fees for standardized design. Nuclear power industry commenters questioned the Commission's proposal to defer fees for review of standardized reference designs until referenced by an applicant, or at the end of 5 years (10 years if a design is certified) after design approval, whichever comes first. A few commenters felt that fees should not be charged or should be waived for standardized design reviews to remove any disincentive for the standardization program and what could possibly be unusually extensive costs as a result of the review being a "first-of-a-kind" that might require extensive safety reviews.

Response: The Commission's decision to defer fees for standard reference design reviews is based upon a balancing of policy considerations. On the one hand, it is clearly the policy of the Government, and the intent of the Congress, that the Commission collect fees for services rendered to applicants. Thus, standard reference design reviews are not to be performed free of charge. On the other hand, there is a sound and persuasive public policy need to avoid a disincentive to the submittal of standard designs by vendors incorporating the best safety features available for a future generation of reactors. For years, the Commission has supported the use of standard designs (see, e.g., 10 CFR Part 50, Appendix O, and 10 CFR 2.110). On balance, the Commission believes that the deferral of fees for standard design reviews is a reasonable compromise that serves the public interest. Accordingly, the Commission will retain its proposed treatment of fees for standard reference designs.

4. Disparity in certain materials fee categories. Two materials licensees questioned why the license and inspection fees in certain areas are higher when compared with other areas.

Response: The NRC recognizes that a part of the current Part 170 fee schedule for materials licenses is outdated and needs revision. For example, the labor rates (staff hours and fees applied) used in calculating fees are based on data that is several years old. The NRC has determined that this is not the appropriate rulemaking to make the necessary adjustments. The NRC contemplates initiating a rulemaking on this issue next year.

Part 171 Comments

The Commission notes that the rulemaking to which the following comments are again addressed is of a very limited scope with respect to Part 171. The rulemaking adds two new

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definitions to which no comments were addressed, it changes the percent of recovery from 33 percent of the Commission's budget to at least 45 percent, enters a more refined allocation of the annual fee among different classes of power reactors, and eliminates the provision for refunds of collections in excess of 45 percent. The Commission received some comments that go beyond these limited subjects and are therefore not relevant to this rulemaking. Nonetheless, the Commission is responding to them. The response to comments beyond the scope of the rulemaking should not, however, be taken as an admission by the Commission that the issues raised are again open to challenge. Responses to these comments are seen as a matter of courtesy to the commenters and not as reopening these issues to further litigation. These comments and the responses thereto are:

1. **Legality of fees.** Several commenters, in particular law firms representing operators of nuclear power reactors, commented on issues of a legal nature.

Response. These comments for the most part repeated comments addressed to the first issuance of 10 CFR Part 171 (final rule issued September 18, 1986; 51 FR 33224) promulgated to implement section 7601 of the Consolidated Omnibus Budget Reconciliation Act of 1985. That rule was challenged and upheld in its entirety in *Florida Power & Light Co. et al. v. United States*, 846 F.2d 765 (D.C. Cir. 1988). A petition for writ of certiorari challenging that decision is pending in the Supreme Court (*Florida Power & Light Co. v. United States*, No. 88-234).

2. **Allocation of costs.** Some commenters stated that annual fees should be levied on all persons such as materials licensees receiving services from the Commission.

Response. Congress provided the Commission with the discretion to determine which categories of licensees or other persons should be charged an annual fee by the Commission. The Commission's decision not to charge materials licensees annual fees was upheld in *Florida Power & Light v. United States*, supra. The Commission has reaffirmed its determination that it will not impose an annual fee on its materials licensees. The Commission has more than 8000 materials licensees. Regulation of these entities requires a minimal expenditure of NRC resources (less than 3 percent of the NRC budget). Moreover, these licensees are an extremely varied class, ranging from large uranium processing operators to small operators involving well logging.

radiography, or the use of gauging devices. In light of the relatively minor resources devoted to regulating these entities and the obvious administrative difficulties in determining how to calculate appropriate annual fees for this large, diverse class of licensees, the Commission will not impose an annual fee on these licensees at this time.

3. Some commenters asserted that the cost basis for annual fees should exclude costs serving an independent public benefit.

Response. The concept that costs related to an independent public benefit should not be charged to licensees derives from the case law on application of the Independent Offices Appropriation Act of 1952, 31 U.S.C. 9701 (IOAA). It is not a concept applicable to annual fees charged under COBRA, as amended. The annual fee statute has its own standard independent of the standards applicable to IOAA. In any case, the research performed by the NRC primarily benefits power reactor licensees as part of the system under which those facilities are regulated and allowed to operate in a manner that provides adequate protection to the public health and safety. Therefore, none of the services for which fees are charged provide "independent public benefits" even if this concept were deemed applicable. The Commission's position on this issue was also upheld in *Florida Power & Light v. United States*, supra.

4. Some commenters took the position that fees should be based on specific identifiable services benefitting individual licensees and not on generic agency action.

Response. The concept that fees should be levied only for specific services to identifiable recipients is an IOAA standard. It is not a standard that applies to annual fees under COBRA, as amended. It is the Commission's continuing view that the Congress did not intend that IOAA principles be applied to the collection of annual fees under COBRA, as amended. The Commission's determinations in this area were upheld in *Florida Power & Light v. United States*, supra.

5. Some commenters stated that the Commission should not include in its cost basis for annual fees research cost until the Commission acts upon that research and it is shown to provide a benefit.

Response. It is the position of the Commission that research devoted to the continued safety of nuclear power reactors is a present service and benefit. This research either confirms that reactors are safe, that some changes will improve safety, or that certain

regulations may no longer be necessary for safe operation. The conduct of research resulting in any of these outcomes is a present benefit. This research provides continuing confidence that licensed reactors can be operated consistent with the public health and safety and the Commission's regulations. We again note that the DC Circuit Court of Appeals in *Florida Power & Light v. United States*, supra, upheld the Commission's decision to include such costs in its annual fee basis.

6. One commenter felt that monies from the collection of fines, penalties and interest should be included in the 45 percent required to be collected.

Response. Although related here to the 45 percent level of collection, the same comment was presented with respect to the rule promulgating the 33 percent ceiling. The Commission adheres to its prior position. Fines, penalties and interest are not cost recovery measures, but are disciplinary and intended to deter persons who violate Commission regulations and orders, as well as other licensees, from future violations. Public policy dictates that those paying penalties, fines, or interest should not benefit by recovering a portion of the penalty, fine or interest through a reduced fee. Again, this Commission decision was upheld in *Florida Power & Light v. United States*, supra.

7. **Other Comments on Part 171 Amendments.**

a. Some licensees and their vendors have stated that the additional costs assessed for B&W type reactors are not justified because these plants are not problem plants requiring the greatest expenditure of staff funds and manpower when compared with other reactors.

Response. The basis for assessing B&W owners under Part 171, or any licensee (by vendor type), is not based upon performance, but it is an allocation of fee based upon corresponding costs (FTE and obligations) to the NRC to perform generic type activities associated with that type of reactor (vendor type). Some specific activities questioned (i.e., "Continuing Experimental Capability" and "Technical Integration Center") have been reallocated based upon a more detailed identification matrix of licensee groups.

b. Florida Power Corporation commented that Agency and industry research supports exclusion of reactors east of the Rockies from the list of reactors benefitting from special seismic studies.

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Response. Although its service area lies within a region of low seismicity, the Florida Power Corporation, as explained below, benefits substantially from NRC seismic research, including maintenance of the NRC-funded seismograph networks east of the Rocky Mountains. Seismic research through the years has shown that Florida is less prone to earthquakes than a large part of the eastern and central U.S., and thus allows for less stringent seismic design bases for critical facilities. Ongoing seismic monitoring will continue to confirm that conclusion or identify possible errors of judgment.

Recent experience (1982 New Brunswick and New Hampshire earthquakes, the 1987 southern Illinois earthquake and the reservoir induced seismicity at Monticello Reservoir, South Carolina) indicates that high accelerations at relatively high frequencies can be generated locally by moderate to small magnitude earthquakes, usually at relatively shallow depths (several kilometers). It is possible that earthquakes of these sizes could occur in Florida (although the probability is low). Accelerations can result that exceed OBE or SSE design bases for critical facilities. We do not believe that these ground motions (short duration, high accelerations at high frequencies) are the kind that result in damage to seismically designed critical facilities, but research in this area is ongoing. The occurrences are extremely difficult to handle even with no evidence of damage. The seismic networks are the main sources of data that are basic to resolving this issue.

Another major issue regarding eastern U.S. seismicity is the nature of the tectonic structures that are currently responsible for the earthquakes. Suspect structures include faults in rocks ranging in age from Paleozoic through Triassic and into Tertiary (several hundred million years old to several million years old). These faults are widely distributed in rocks throughout the east, including rocks beneath Florida. Much of current seismic and geologic research funded by the NRC is focused on identifying and defining the tectonic structures that are causing the earthquakes. The most definitive information about seismic sources, which are deeply buried, is obtained from the analysis of recordings of earthquake ground motions. Builders and operators of critical facilities in low seismic areas derive as much benefit from this type of research as those in more seismic areas in view of the relatively short historic seismic record.

c. Level of budget detail. Several utilities' overall criticism of the proposed rule concerns their perception of the need to breakout budgeted obligations to a level lower than the Program—Program Element—Activity structure used in the NRC planning process in the area of research. These utilities further comment on the fact that the budget detail, maintained at the activity level and provided to the Public Document Room (PDR) does not allow them access to greater detail (to see if the NRC developed its budget, thus its user charges, accurately).

Response. This suggestion has been adopted. We have gone one level below the activity level to the project level (FIN) in developing fees for research activities. Using the FIN level permits a more detailed breakout of fee categories. However, FIN information used in developing these fees cannot be placed in the PDR now because it contains predecisional contracting information—amounts set aside for specific procurements that have not yet been awarded. To release this information before contracts are awarded would be in violation of the Federal Procurement Law. Accordingly, we do not envision placing the FIN data used in developing this fee schedule in the PDR until sometime during the following fiscal year.

d. MIST program costs. Several commenters stated that the Commission agreed to share in the funding of Multi-Loop Integral System Test (MIST), the program with the B&W Owners Group (OG). However, it is in the research costs set forth in Table IV of the proposed rule. It is inappropriate for NRC to pass its share of the MIST costs on to B&W Owners through license fees.

Response. The NRC does provide funding for the MIST program as well as other cooperative programs. Being an agency cost item, the MIST program as well as the costs for all other current and future cooperative programs should be used in the cost allocation data base. Moreover, we do not view this as a breach of the co-funding agreement by NRC with the OG because the current agreement is about to expire and a new agreement is being negotiated. All of the \$2.7 million included in the user fee base is for activities that would be funded by the new agreement rather than the existing one. Before entering the new agreement, this final rule will have been promulgated putting the OG on notice of the agency's revised user fee policies.

It should also be pointed out that in the past two phases of MIST co-op research (Phase 3 and Phase 4), the owners group paid only about one-half

of the NRC contributions for Phase 3 and did not contribute any funds for Phase 4. Because almost 90 percent of all funds budgeted in areas subject to fee recovery under Part 171 will be collected through user fees, if co-op research programs were exempt from the fee base, the co-op groups would receive fee exemptions not available for other research—inequitably shifting the fee burden to other licensees.

e. Comments on specific changes to Part 171. Comments on the proposed changes to Part 171 fall into three primary groups: (1) The Commission is in error in considering the 45 percent collection target as a floor, and not as a ceiling, (2) the Commission is in error in eliminating the provision for refunds for excess annual fee collections (§ 171.21), and (3) the Commission should adopt option 2 identified in the notice of proposed rulemaking. Under that option, the previously adopted method for calculating annual fees would be retained. The only significant change would be raising the annual fee to collect 45 percent of the NRC budget. Other commenters suggested that Option 2 not be adopted.

Response. The Commission addressed all three of these issues in its notice of interim rule published August 12, 1988, in the *Federal Register* (53 FR 30423). There the Commission stated its view that reading the 45 percent in Omnibus Budget Reconciliation Act (OBRA) (amending COBRA) as a ceiling would be contrary to the language and plain meaning of the statute, quoting, " * * * in no event shall such percentage be less than a total of 45 percent of such costs in each such fiscal year." (Section 5601, Omnibus Budget Reconciliation Act of 1987.) The Commission adheres to that view again emphasizing that fees will exceed the 45 percent target by a trivial amount.

The elimination of the provision for refunds results from the Commission's view of the operative effect of the 45 percent constituting a floor for collections. In presenting the 45 percent as a floor, and not a ceiling, OBRA removed the necessity to make refunds which was implicit in COBRA when the latter imposed a 33 percent ceiling prior to its amendment. In short, the change in the law from a 33 percent ceiling to a 45 percent floor for collections eliminates the need to make a refund of amounts collected in excess of 45 percent. Accordingly, consistent with its view of Congressional intent, the Commission is permanently removing § 171.21 from its regulations.

With respect to the suggestion that option 2 be adopted and the fee

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collection methodology remain unchanged, the Commission does not support this approach. The Commission is firmly committed to assessing fees based on the principle that those licensees requiring the greatest expenditure of NRC resources pay the greatest fees. Option 2 is contrary to this policy.

f. One commenter requested that consideration of the utility's rate base be included among the exemption criteria in 10 CFR 171.11.

Response. This comment is also outside the scope of the rulemaking because the rulemaking does not propose any change to the exemption criteria in Part 171. Nonetheless, the Commission believes that factors related to a utility's rate base may be considered in passing on requests for exemptions in § 171.11. Rate base matters may be considered under § 171.11(c) and under § 171.11(e). In the Commission's view, the commenter's request is already accommodated in Part 171 as initially codified.

III. Changes Included in the Final Rules

The changes included in the final rule are as follows and permit the NRC to recover approximately, but not less than, 45 percent of its budgeted costs for fiscal years 1988 and 1989, respectively. These changes were set forth in the proposed rule published on June 27, 1988 (53 FR 24077). Any differences between the final rule and the proposed rule are explained in the following discussion.

1. Changing the hourly rates under 10 CFR 170.20 which range from \$53 to \$62 for the various program offices to \$86 for all program offices based on the FY 1989 budget and providing for an annual adjustment if there is a need for increase or decrease. The \$86 hourly rate is an increase from the proposed \$80 hourly rate. This increase is as a result of using the FY 1989 budget in lieu of the FY 1988 budget. The method used for calculating the hourly rate is exactly the same as that used in the proposed rule. An analysis of the budget which generated this rate is provided in the Part 171 Section-by-Section Analysis.

2. Removing the 10 CFR Part 170 fee ceilings for application reviews, services, and inspections for reactors; fuel cycle facilities; transportation cask packages and shipping containers.

3. Amending 10 CFR 170.31 to charge for each routine inspection conducted by the NRC and to delete the maximum billing frequency. For user convenience, the fee schedule previously included in 10 CFR 170.32 has been incorporated in 10 CFR 170.31.

4. In 10 CFR Part 170, removing the application fee and deferring the

payment of costs for the review of applications for standardized reactor design reviews and certifications until a standardized design is referenced.

5. In 10 CFR Part 170, removing application filing fees for reactor applications and for reactor related topical reports.

6. Increasing the annual fees assessed under 10 CFR Part 171 and charging based on the principle that licensees requiring the greatest expenditure of NRC resources shall pay the greatest fee. Again, as in the development of the hourly rate, the method used for determining the annual fee is the same as that described in the proposed rule except that budget obligations have been identified one level below the detail shown in the proposed rule based on the comments received, and FY 1989 budget data have been used in lieu of the FY 1988 data used in the proposed rule.

7. Including in the NRC collection, moneys recovered from the Nuclear Waste Fund, as managed by the Department of Energy under the Nuclear Waste Policy Act, as amended, for costs incurred by the NRC in preparing for licensing a high-level waste repository.

The agency workpapers which support the changes to 10 CFR Parts 170 and 171 are available in the Public Document Room, at 2120 L Street, NW., Washington, DC, in the lower level of the Gelman Building.

IV. Section-by-Section Analysis

The following section-by-section analysis of the affected sections provides additional explanatory information. All references are to Title 10, Chapter I, Code of Federal Regulations.

Part 170

Section 170.12 Payment of fees.

Paragraphs (c), (d), (e), and (f) are changed to remove the \$150 application fee for reactor license amendments and other approvals.

Within paragraph (e), Approval fees, the current reference to facility standard reference design approvals is changed to remove the application fee and to permit deferral of review and certification fees until the design is referenced, payable thereafter in 20 percent increments as the design is referenced. However, regardless of whether the design is referenced, the full costs of a preliminary design approval (PDA)/final design approval (FDA) will be recovered by the NRC from the holder of the design approval within 5 years from the date of approval. If the design is certified, the five-year period is

extended to 10 years from the date of the design certification with the same proviso that 20 percent of the costs will be payable each time the design is referenced. In the event the standardized design approval application is denied, withdrawn, suspended, or action on the application is postponed, fees will be collected when the review, to that point, is completed and the five (5) installment payment procedure will not apply.

Section 170.20 Average cost per professional staff-hour.

This section is modified to reflect an agency-wide professional staff-hour rate based on the FY 1989 budget. The section is also modified to reflect that the hourly rate will be adjusted each fiscal year, with notice of the new rate published in the **Federal Register** if the hourly rate increases or decreases. Accordingly, the professional staff rate for the NRC for FY 1989 is \$86 per hour, or \$150.9 thousand per FTE (professional staff year) rather than \$80 per hour as set forth in the proposed rule. An analysis of the budget which generated this rate is provided in the Part 171 section-by-section analysis. In each subsequent year, the hourly rate will be adjusted to reflect current cost per direct staff FTE.

On August 19, 1987, Part 170 and other regulations under Title 10 of the Code of Federal Regulations were amended to reflect NRC organizational changes. These revisions as published August 21, 1987 (52 FR 31601), in final form, inadvertently changed 10 CFR 170.20 to delete the \$53 hourly rate for regional staff inspection and other identifiable services. In computing costs for invoices, the \$53 hourly rate will continue to be used for regional review staff time until the effective date of this final rule at which time the \$86 hourly rate will be used.

Section 170.21 Schedule of fees for production and utilization facilities, review of standard reference design approvals, special projects, and inspections.

Within the schedule of fees, all services (other than most application filing fees) will be changed from the current specified cost to "Full Cost." The schedule for Standard Reference Design Review is modified to reflect the amendment of § 170.12 addressed above.

With the removal of ceilings for certain services, the costs for those reviews for which a ceiling previously established has been reached will not be billed if prior to the effective date of this

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rule the review of the application is completed. For administrative reasons, where the review has not yet been completed, NRC will not seek to recover those costs which it incurred after the current ceiling was reached and before this revised rule becomes effective.

Costs incurred after the effective date of this final rule will be billed. The professional staff-hours expended up to the effective date of this rule will be at the professional rates established for the June 20, 1984 rule. Any professional hours expended after the effective date of this rule will be assessed at the FY 1989 rates reflected in this final rule. The same applies to the removal of ceilings under the revisions of § 170.31 below. The footnotes to this schedule also are modified to bring them into conformity with the amendments to this schedule.

Section 170.31 Schedule of fees for materials licenses and other regulatory services.

Like § 170.21, this section is modified to (a) reflect the removal of ceilings on certain categories of fees, (b) charge full costs for those services, and (c) incorporate the inspection fee schedule previously set forth in § 170.32.

Inspection fee ceilings for selected services are also removed and the remaining fixed fees are retained since the ratio of NRC costs to fees collected is approximately equivalent to the percentage of the budget to be collected into the General Treasury. Currently if the frequency of inspection, for example, for a category is 2 years and an inspection is next conducted 1 year and 11 months after the previous inspection, no fee is assessed. Often times inspections of different licensees are scheduled because of their close proximity. This scheduling represents a more efficient use of resources. Accordingly, § 170.31 and the footnotes are being revised to indicate that fees will be assessed for each inspection conducted by the NRC. Footnotes to the schedule that are affected by this action are revised to be consistent with this revision. Previous inspection footnotes 1 through 4 are now being combined as one footnote and will become 1(e) and footnote 5 remains as 5.

Section 170.32 Schedule of fees for health, safety, and safeguards inspections for materials licenses.

Under the proposed rule, § 170.32 was published as a separate schedule to cover inspection fees for materials licensees. The reformatting to include materials inspection fees under § 170.31 is for user convenience and to shorten the rule. By doing this, as in § 170.21, all fees for each license category are now

together rather than in two different schedules. The rule has not been changed from its proposed form. Footnotes have been consolidated and renumbered as specified above.

Part 171

The following is a section-by-section analysis of those areas affected by this final rule. All references are to Title 10, Chapter I, Code of Federal Regulations.

Section 171.5 Definitions.

The following definitions are being added.

The term "Budgeted obligations" is defined to be the projected obligations of the NRC that likely will result in payments by the NRC during the same or a future fiscal year to provide regulatory services to licensees. Budgeted obligations include, but are not limited to amounts of orders to be placed, contracts to be awarded, and services to be provided to licensees. Fees billed to licensees are based on budgeted obligations because the NRC's annual budget is prepared on an obligation basis.

The term "Overhead costs" is defined to include three components: (1) Government benefits for each employee such as leave and holidays, retirement and disability costs, health and life insurance costs, and social security costs; (2) Travel costs; (3) Direct overhead, e.g., supervision, program support staff, etc.; and (4) Indirect costs, e.g., funding and staff for administrative support activities. Factors have been developed for these overhead costs which are applied to hourly rates developed for employees providing the regulatory services within the categories and activities applicable to specified types or classes of reactors. The Commission views these costs as being reasonably related to the regulatory services provided to the licensees and, therefore, within the meaning of section 7601, COBRA.

Section 171.13 Notice.

Under the current rule, one fee is applicable to all licensed reactors. Under this final rule, each reactor will be assessed fees based on those NRC activities from which it benefits as a type or within a class of reactors. Accordingly, annual fees are expected to be different for each of the various types or classes of reactor operating licenses. Each bill will reflect those specific activities applicable to each operating license as required by the revised § 171.15 discussed below.

Section 171.15 Annual Fee: Power reactor operating licenses.

Paragraph (c) is modified to reflect a minimum target percentage of 45 percent rather than a maximum percentage of 33 percent. The formula used to calculate the annual fee is modified to reflect the inclusion of moneys expected to be collected from the Nuclear High Level Waste (HLW) Fund administered by the Department of Energy and the estimated collections under Part 170 for each fiscal year. Funds will be collected from the Nuclear HLW fund beginning in FY 1989. The sum of these funds will be subtracted from the amount reflecting 45 percent of the NRC budget prior to determining the annual fee for each licensed power reactor.

In FY 1989, the Commission must recover not less than 45 percent of its congressionally enacted budget of \$420,000,000. Applying the fee rates set out in this rule, the NRC estimates that it will collect in FY 1989 \$50 million pursuant to Part 170 and \$15 million from the Nuclear Waste Fund. In accordance with the formula provided in § 171.15, for FY 1989: \$189 million minus approximately \$50 million for Part 170 plus \$15 million for Nuclear Waste Fund equals approximately \$124 million to be recovered through annual fees. Because at least 45 percent is to be collected, the amount charged under Part 171 will also be dependent on the number of exemptions granted pursuant to § 171.11 and the number of new power reactor licenses issued during the fiscal year.

The following areas are those NRC programs which comprise the annual fee. They have been expressed in terms of the NRC's FY 1989 budget program elements and associated activities in lieu of the FY 1988 activities used in the proposed rule.

Program element	Activity
—Reactor Performance Evaluation.	—Generic Communications. —Engineering/Safety Assessments.
—Reactor Maintenance and Surveillance.	—Maintenance and Surveillance.
—License Performance Evaluation.	—Quality Assurance.
—License and Examine Reactor Operators.	—Program Development and Assessment/ Regional Oversight. —Generic Activities.
—Region-Based Inspections.	—Lab and Technical Support.
—Specialized Inspections.	—Regional Assessment. —Vendor Inspections.

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Program element	Activity	Program element	Activity
—Regulatory Improvements.	—Technical Specifications. —Safety Goal Implementation. —Inspection/Licensing Integration and Research and Standards Coordination.	—Reactor Accident Risk Analysis.	—Integrated Codes and Applications. —Hydrogen Transport and Combustion. —Severe Accident Management. —Risk model development. —Risk Uncertainty Methodology. —Risk Rebaseline Analyses. —Risk-Based Management Methodology.
—Licensee Reactor Accident Management Evaluation.	—Concept of Operations and Implementing Technical Procedures. —Regional Assistance Committees.	—Severe Accident Program Implementation.	—Severe Accident Policy Implementation. —Regulatory Application of New Source Terms. —Reduce Uncertainty in Health Risk Estimates. —Health Physics Technology Improvements. —Dose reduction. —Engineering Issues. —Reactor System Issues. —Human Factors Issues. —Severe Accident Issues. —Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Safeguards Licensing and Inspection.	—Regulatory Effectiveness Reviews.	—Radiation Protection and Health Effects.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Reactor Vessel and Piping Integrity.	—Pressure Vessel Safety. —Piping Integrity. —Inspection Procedures and Techniques. —Chemical Effects. —Aging Research.	—Generic and Unresolved Safety Issues.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Aging of Reactor Components.	—Equipment Qualification Methods. —Earth Sciences. —Component Response to Earthquakes. —Validation of Seismic Analysis. —Seismic Design Margin Methods.	—Developing and Improving Regulations.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Reactor Equipment Qualification.	—Individual Plant Examinations. —Ex-Vessel Accident Management. —In-Vessel Accident Management. —External Event Safety Margins.	—Performance Indicators..	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Seismic and Fire Protection Research.	—Containment/Balance of Plant. —Technical Support Center. —Nuclear Plant Analyzer/Database/Simulator.	—Diagnostic Evaluations...	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Accident Management...	—B&W Testing. —PWR Large Break LOCA Testing. —PWR Small Break LOCA Testing. —Other Experimental Programs. —Modeling.	—Incident Investigation	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Reactor Applications	—Human Factors Research. —Human Error Data Collection and Analysis.	—NRC Incident Response.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Plant Performance.....	—Performance Indicators. —Plant and Systems Risk and Reliability. —Dependent Failure Analysis.	—Technical Training Center.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Human Performance	—Fission Product Behavior and Chemical Form. —Natural Circulation in the Reactor Coolant System.	—Operational Data Analysis.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Reliability of Reactor Systems.	—Core Melt Progression and Hydrogen Generation. —Steam Explosion. —Core/Concrete Interactions. —Direct Containment Heating.	—Operational Data Collection and Dissemination.	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Core Melt and Reactor Coolant System Failure.		—Section Supervision.....	—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.
—Reactor Containment Safety.			—Management of Safety Issue Resolution. —Regulation Development or Modification. —Independent Review and Control of Rulemaking. —Regulatory Analysis of Regulation. —Rules for License Renewal. —Safety Guide Implementation.

Each of these activities is related to providing services to operating nuclear power plants. NRC's efforts in each of these areas contribute to the licensees' continued safe operation of their facilities and therefore are of benefit to them. A broader description of these programs is contained in the NRC's annual budget submission to Congress. See NUREG-1100, Volume 4, "Budget Estimates Fiscal Year 1989" (February 1988).¹ While these activities also provide benefits to the public, because they benefit our licensees, these are not "independent public benefits" as that term is used in user fee case law. Accordingly, it is legally permissible to charge licensees for these services.

Paragraph (c) is being revised to reflect that the basis for each annual fee will be the budgeted obligations for activities (regulatory services) applicable to each nuclear power reactor as one of a type or class of reactors, e.g., boiling water reactors or pressurized water reactors. Using this approach, the Commission will, each year, establish the budgeted obligations (including overhead costs) for each activity on a per reactor unit basis, and establish the total costs for those regulatory services provided to each reactor licensed to operate. NRC labor costs attributable to these activities will be determined using the hourly rates established on the basis of an analysis of direct and indirect (overhead as defined herein) staffing costs attributable to the regulatory services provided.

Paragraphs (d) and (e) of the current rule are being deleted as superfluous to the proposed approach to annual fees.

Supplemental Analysis on Annual Fee Determination Under § 171.15

Under current legislation, the NRC is to collect and deposit to the General Fund of the Treasury, an amount to approximate but not be less than 45 percent of its budget. In fiscal year 1989 the President's budget for the NRC is \$420.0 million. Thus, in FY 1989 the NRC should collect at least \$189 million. In FY 1989, it is estimated that approximately \$50 million will be collected from specific licensees under Part 170, and \$15 million from the

¹ Copies of NUREG-1100, Vol. 4 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for public inspection and/or copying at the NRC Public Document Room, 2120 L Street NW., Lower Level of the Gelman Building, Washington, DC.

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Department of Energy High-Level Waste Fund. Thus, the remaining funds, at least \$124 million (\$189 million less \$65 million), will have to be collected under Part 171. A multiplier will be used such that the amount to be collected will be equal to Part 170 collections, plus High-Level Waste Fund collections, plus Part 171 potential collections multiplied by a factor "M," which in FY 1989, will probably be less than one. Thus "M" equals

124

148

or .84 of the budget base.

For FY 1989, the budgeted obligations by direct program are: (1) Salaries and Benefits, \$184.0 million; (2) Administrative Support, \$70.0 million; (3) Travel, \$12.0 million, and (4) Program Support, \$154.0 million. In FY 1989, 1603.4 FTEs are considered to be in direct support of NRC programs applicable to fees (See Table I). About 337 FTEs are utilized in efforts associated with Part 171, with the remainder being utilized in efforts associated with Part 170, or to be recovered from the DOE Nuclear Waste Fund or other efforts. Of the total 3,180 FTEs, 1,577 FTEs will be considered overhead (supervisory and support) or exempted (due to their program function). Of the 3,180 FTEs, a total of 291 FTEs and the resulting \$23.9 million in support are exempted from the fee base due to the nature of their functions (i.e., enforcement activities and other NRC functions currently exempted by Commission policy).

TABLE I.—ALLOCATION OF DIRECT FTEs BY OFFICE

Office	Number of direct FTEs ¹
NRR/SP.....	968.0
Research	155.0
NMSS.....	307.2
AEOD.....	93.0
ASLAP.....	5.2
ASLBP.....	17.0
ACRS.....	25.0
OGC.....	33.0
	1603.4

¹ Regional employees are counted in the office of the program each supports.

In determining the cost for each direct labor FTE (an FTE whose position/function is such that it can be identified to a specific licensee or class of licensees) whose function, in the NRC's judgment, is necessary to the regulatory process, the following rationale is used:

1. All such direct FTEs are identified by office.

2. NRC plans, budgets, and controls on the following four major categories (see Table II):

- Salaries and Benefits.
- Administrative Support.
- Travel.
- Program Support.

3. Program Support, the use of contract or other services for which the NRC pays for support from outside the Commission, is charged to various categories as used.

4. All other costs (i.e., Salaries and Benefits, Travel, and Administrative Support) represent "in-house" costs and are to be collected by allocating them uniformly over the total number of direct FTEs.

Although this method differs from previous methods for recovery of costs, it is equally as accurate because it allocates all "in-house" resource requirements over the universe of direct FTEs (those staff members who would be billed to licensees based upon work performed either directly for a specific licensee or a specific group of licensees).

Using this method which was described in the proposed rule and the FY 1989 budget, and excluding budgeted Program Support obligations, the remaining \$242 million allocated uniformly to the direct FTEs (1603.4) results in a calculation of \$150.9 thousand per FTE for FY 1989 (an hourly rate of \$86).

TABLE II.—FY 1989 BUDGET BY MAJOR

CATEGORY

[\$ In Millions]

Salaries and benefits	\$184
Administrative support	70

TABLE II.—FY 1989 BUDGET BY MAJOR

CATEGORY—Continued

[\$ In Millions]

Travel	12
Total nonprogram support obligations	266
Program support	154
Total budget	420

The Direct FTE Productive Hourly Rate (\$86/hour rounded down) is calculated by dividing the annual nonprogram support costs (\$266 million) less the amount applicable to exempted functions (\$23.9 million) by the product of the direct FTE (1,603.4 FTE) and the number of productive hours in one year (1,744 hours) as indicated in OBM Circular A-76, "Performance of Commercial Activities."

Because Part 171 is designed to collect fees for NRC efforts of a generic or multi-license nature concerning licensees with power reactor operating licenses, the most feasible method to accomplish this is to develop fees based on NRC budgeted obligations for each NRC generic or multi-licensee program concerning plants with operating licenses. Additionally, because many of the research programs expend effort for specific types of reactors (i.e., Westinghouse, CE, B&W, and GE), containment types (i.e., Mark I, II, III, etc.), or plants in a specific geographic location (e.g., reactors east of the Rockies), these parameters were also used in refining NRC cost by reactor/operating license. Table III presents a summary of Part 171 fees, by reactor category, using the FY 1989 budget for Program Support costs and FTEs.

As can be seen from Table III, a reactor which is a B&W reactor, east of the Rockies would have a fee (\$1,592) imposed which is higher than the fee (\$1,121) imposed on a GE Mark I reactor west of the Rockies. This example also represents the normal range of fees to be charged under Part 171 of \$1,121 thousand to \$1,592 thousand. Table IV provides a detailed presentation of the budgeted obligations by budget program element and activity and shows how the annual fees were determined for the various types of reactors. Table V is a specific listing of the annual fee to be assessed for each reactor in FY 1989.

Table III—Part 171 Fee By Reactor Category—Summary

[Fees in millions]

With Minor Adjustments for Plants West of Rockies or Westinghouse Plants With Ice Condensers the Following Apply to Plant/Containment

Type	No.	Budget base X.84	Fee	Total collection
GE Mark I	(24)	\$1.349	\$1.133	\$27.19
GE Mark II	(7)	1.443	1.212	8.48

PART 171 STATEMENTS OF CONSIDERATION

TABLE III.—WITH MINOR ADJUSTMENTS FOR PLANTS WEST OF ROCKIES OR WESTINGHOUSE PLANTS WITH ICE CONDENSERS THE FOLLOWING APPLY TO PLANT/CONTAINMENT—Continued

[Fees in millions]

Type	No.	Budget base X.84	Fee	Total collection
GE Mark III	(4)	1.373	1.153	4.61
B&W	(8)	1.896	1.592	12.74
CE	(15)	1.391	1.168	17.52
Westinghouse	(48)	1.352	1.135	54.48
	106			125.0

Fee Basis by Vendor/Containment Type-Summary (\$000)

All GE Mark I's	¹ (24)	\$1,219 98 18 14	(All). (All BWR). (Mark I). (East of Rockies).
All GE Mark II's	¹ (7)	1,349 1,219 98 70 42 14	(All). (All BWRs). (Mark II). (Mark II/III). (East of Rockies).
All Mark III's	¹ (4)	1,443 1,219 98 42 14	(All). (All BWR). (Mark II/III). (East of Rockies).
All B&Ws	¹ (8)	1,373 1,219 112 7 544 14	(All). (All PWR). (All PWR-LDC). (All B&W). (East of Rockies).
All CE's	¹ (15)	1,896 1,219 112 7 39 14	(All). (All PWR). (All PWR-LDC). (All CE). (East of Rockies).
All Westinghouse	¹ (48)	1,391 1,219 112 ² 7 14	(All). (All PWR). (All PWR-LDC). (East of Rockies).
		1,352	

Fee Basis by Category—Summary (\$000)

All Plants	(106)	\$1,219	
All PWRs		112	
Plus PWRs with LDC		7	
Plus All B&Ws or		544	
All CEs		39	
All BWRs		98	
Plus All Mark I's		18	
Plus All Mark II's		70	
Plus All Mark II's & III's		42	
All Plants East of Rockies (SEISMIC)		14	

¹ All except plants west of Rockies which pay \$14,000 less.

² 8 Westinghouse plants with ice condenser are not charged this \$7,000 fee.

TABLE IV.—FEE BASIS FOR ALL REACTORS—DETAIL (\$000)

		PT\$	FTE\$
Generic (All Reactors) (106):			
NRR/SP		\$4,092	\$19,949
AEOD		9,255	13,355
RES (All)		29,251	8,149
RES (PWRs & BWRs)		36,212	5,915
RES SEISMIC (All)		2,603	438
		81,413	47,806
Total		\$129,219	\$129,219
Total	=		1,219
Number Reactors	=	106	Per Reactor

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FEE BASIS FOR ADDITIONAL CHARGES BY NUCLEAR STEAM SUPPLY SYSTEM VENDOR AND CONTAINMENT TYPE - DETAIL

<u>PRESSURIZED WATER REACTORS</u>		PTSS (\$000)	FTE\$ (\$000)
<u>NSSS, ALL PWRs (71)</u>		\$6,200	\$1,720
TOTAL - PWRs	=		<u>\$7,920</u>
TOTAL	=	<u>\$7,920</u> 71	= \$111.55 Per Reactor
<u>NSSS (ALL LARGE DRY CONTAINMENT [LDC] PWRs) (63)</u>		\$335	\$105
TOTAL PWR LDCs	=		\$ 440
TOTAL PWR LDCs	=	\$ 440	= \$6.98 Per
NUMBER OF REACTORS	=	63	Reactor
<u>NSSS LDC B&W ONLY (8)</u>		\$3,975	\$ 377
TOTAL LDC - B&Ws			<u>\$4,352</u>
TOTAL LDC - B&Ws	=	<u>\$4,352</u>	= \$544.00 Per
NUMBER OF REACTORS	=	8	Reactor
<u>NSSS, LDC - CE ONLY (15)</u>		\$475	\$105
TOTAL LDC - CEs			<u>\$ 580</u>
TOTAL LDC - CEs	=	\$ 580	= \$ 38.67 Per
		15	Reactor
<u>BOILING WATER REACTORS</u>			
<u>NSSS, ALL BWRs (35)</u>		\$3,048	\$377
TOTAL - BWRs	=		<u>\$3,425</u>
TOTAL BWRs	=	<u>3,425</u>	= \$97.86 Per
NUMBER OF REACTORS	=	35	Reactor

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		PTSS (\$000)		FTE\$ (\$000)
NSSS, BWRs (Mark I) (24)		\$ 400		\$30
TOTAL MARK I				<u>\$ 430</u>
TOTAL MARK Is =	<u>\$430</u>	=	\$17.92	Per
NUMBER OF REACTORS =	<u>24</u>			Reactor
NSSS, BWRs (MARK II) (7)		\$400		\$ 90
TOTAL MARK II				<u>\$490</u>
TOTAL MARK IIIs =	\$ 490	=	\$70.00	Per
NUMBER OF REACTORS =	<u>7</u>			Reactor
NSSS, BWRs (TOTAL MARK II/MARK III) (7/4)		\$325		\$135
TOTAL MARK II/MARK III S				<u>\$460</u>
TOTAL MARK II/MARK IIIIs =	<u>\$460</u>	=	\$41.82	Per
NUMBER OF REACTORS	<u>11</u>			Reactor
SEISMIC WORK - ALL PLANTS		\$2,603		\$438
TOTAL SEISMIC - ALL PLANTS				<u>\$3,041</u>
TOTAL SEISMIC ALL PLANTS =	<u>\$3,041</u>	=	\$28.69	Per
NUMBER OF REACTORS =	<u>106</u>			Reactor
SEISMIC WORK (APPLICABLE PLANTS EAST OF ROCKIES)		\$1,220		\$151
TOTAL EAST OF ROCKIES				<u>\$1,371</u>
TOTAL EAST OF ROCKIES =	<u>\$1,371</u>	=	\$14.43	Per
NUMBER OF PLANTS =	<u>95</u>			Reactor

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	FY 1989	
	Program support \$	FTE
Part 171 Work by NRR		
Generic Effort—All Plants		
1. Reactor Performance Evaluation:		
a. Generic Communications.....	\$0	10.5
b. Engineering/Safety Assessments.....	387	6.4
2. Reactor Maintenance and Surveillance.....	175	2.2
3. Licensee Performance Evaluation Quality Assurance Program.....	0	4.5
4. License and Examine Reactor Operators:		
a. Program Development and Assessment/Regional Oversight.....	0	8.1
5. Region-Based Inspections:		
a. Lab and Technical Support.....	670	10.6
b. Regional Assessment.....	0	0
6. Specialized Inspections, Vendor Inspections.....	815	15.1
7. Section Supervision.....	0	37.3
8. Regulatory Improvements:		
a. Technical Specifications.....	345	11.9
b. Safety Goal Implementation.....	0	.6
c. Generic Issues/Rules/Reg. Guides/Policy.....	150	11.4
9. Licensee Reactor Accident Management Evaluation:		
a. Emergency Procedures.....	1,115	5.2
b. Regional Assistance Committees.....	0	2.0
10. Safeguards Licensing and Inspection Regulatory Effectiveness Reviews.....	435	6.4
Total Part 171.....	\$4,092	132.2

FTE = 132.2X\$150.9	\$19,949
PTS	4,092
Total—NRR—(All Plants) =	\$24,041

	FY 1989	
	Program support \$	FTE
Part 171 Work by AEOD		
Generic Effort—All Plants		
1. Diagnostic Evaluations.....	\$0	2.0
2. Incident Investigation.....	50	2.5
3. NRC Incident Response.....	2,635	27.0
4. Technical Training Center.....	2,650	22.0
5. Operational Data Analysis.....	2,020	25.0
6. Performance Indicators.....	150	4.0
7. Operational Data Collection and Dissemination.....	1,750	6.0
Total Part 171 Work by AEOD.....	\$9,255	88.5

FTE = 88.5X\$150.9 =	\$13,355
PTS	9,255
Total-AEOD = (All Plants) =	\$22,610

	PTS \$ (\$000)	FTE
Part 171 Work by Research		
A. Generic Efforts—All Plants		
Aging of Reactor Components Aging Research.....	6,246	6.7
Reactor Equipment Qualifications—Equipment Qualification Methods.....	400	.3
Component Response to Earthquakes.....	2,460	2.6
Validation of Seismic Analysis.....	1,200	1.0
Seismic Design Margin Methods.....	350	.7
Prevent Reactor Core Damage.....	200	.3
● Other Experimental Programs.....		
● Modeling.....	50	0
Human Performance—		
● Human Factors Research.....	3,020	3.8
● Human Error Data Collections and Analysis.....	936	1.2
Reliability of Reactor System—Performance Indicators.....	800	1.5
Plant & System Risk & Reliability.....	1,411	2.4
Dependent Failure Analysis.....	225	.2

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	PTS \$ (\$000)	FTE
Individual Plant Exams.....	1,490	1.1
Reactor Containment Structural Integrity.....	2,970	2.3
Regulatory Application of New Source Terms.....	25	1.0
Radiation Protection of Health Effects—Reduce Uncertainty in Health Risk Estimates.....	835	1.8
Health Physics Technology Improvements.....	415	1.5
Dose Reduction.....	825	1.5
Generic and Unresolved Safety Issues.....	790	6.2
Reactor System Issues.....	150	1.2
Human Factors Issues.....	1,000	1.3
Severe Accident Issues.....	370	1.0
Management of Safety Issues Resolution.....	300	6.5
Regulation Development and Modification.....	350	2.9
Regulatory Analysis of Regulations.....	1,044	3.0
Rule for License Renewal.....	1,190	1.0
Safety Goal Implementation.....	200	1.0
Generic Efforts—All Reactors—Total ..	\$29,251	54.0
B. Generic Efforts—All Plants Except HTGR		
Integrity of Reactor Component—Reactor Vessel & Piping Integrity—Pressure Vessel Safety.....	8,195	2.6
Piping Integrity.....	1,385	.5
Inspection Procedures and Techniques.....	1,280	.9
Chemical Effects.....	2,050	4.0
Aging of Reactor Components—Aging Research.....	950	1.1
Reactor Equipment Qualification—Standards Development.....	455	.4
Prevent Reactor Core Damage—Modeling.....	450	.4
Reactor Applications—Containment/Balance of Plant.....	460	1.0
Technical Support Center.....	1,050	1.2
NPA/Database/Simulator.....	400	.8
Accident Management—Vessel Accident Management.....	1,050	1.5
In-Vessel Accident Management.....	1,400	1.5
External Events Safety Margins.....	325	.4
Core Melt Progression and H2 Generation.....	3,820	1.8
Natural Circulation in the RCS.....	690	1.0
Steam Explosions.....	185	0
Fission Product Behavior and Chemical Form.....	990	.8
Reactor Containment Safety—Core Concrete Interaction.....	1,750	.8
Hydrogen Transport and Combustion.....	650	1.0
Integrated Codes and Applications.....	2,762	2.1
Reactor Accident Risk Analysis—Assessment of Plant Risks.....	300	.5
Risk Model Development, QA and Maintenance.....	2,025	3.0
Risk Model Applications.....	2,690	2.0
Severe Accident Policy Implementation.....	200	.6
Regulatory Application of New Source Term.....	125	5.0
Generic and Unresolved Safety Issues—Engineering Issues.....	75	.6
Reactor System Issues.....	500	3.7
Total (PWRs & BWRs)	\$36,212	39.2
C. Seismic—All Plants		
Seismic and Fire Protection—Earth Sciences.....	2,270	1.8
Reactor Accident Risk Analysis—Assessment of Plant Risks.....	273	.5
Resolve Safety Issues and Developing Regulations—Engineering Issues.....	60	.6
Total \$3,041k.....	2,603	2.9
D. Seismic—Plants East of Rockies		
Seismic and Fire Protection—Earth Sciences.....	1,220	1.0
E. Seismic—Plants West of Rockies		
total = \$0.....	0	0
F. Nuclear Steam Supply System		
(PWR only).....		
Integrity of Reactor Component:		
Piping Integrity.....	100	0
Inspection Procedures and Techniques.....	170	.1
Prevent Reactor Core Damage—PWR Large Break LOCA Testing.....	1,000	.9
PWR Small Break LOCA Testing.....	300	.4
Modeling.....	1,700	1.5
Core Melt Progression and H2 Generation.....	300	.2
Fission Product Behavior and Chemical Form.....	300	.2
Direct Containment Heating.....	1,620	1.0
Resolving Safety Issues and Developing Regulations—Engineering Issues.....	235	2.4
Reactor System Issues.....	475	4.7
Total NSSS—PWR Only	\$6,200	11.4
G. NSSS—All Large Dry Containments—(PWRs Only)		
Severe Accident Implementation—Severe Accident Policy Implementation.....	225	.6
Resolving Safety Issues and Developing Regulations—Reactor.....	110	.1
System Issues.....	335	.7

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	PTS \$ (\$000)	FTE
H. NSSS PWR LDC—(Westinghouse only)	0	0
I. NSSS LDC (B&W Only)		
Prevent Reactor Core Damage—Plant Performance—B&W Testing	3,500	1.8
Reactor Accident Risk Analysis—Assessment of Plant Risks.....	475	.7
	3,975	2.5
J. NSSS ICE—Large Dry Containments		
Reactor Accident Risk Analysis—assessment Plant Risks.....	475	.7
K. NSSS—(BWR Only)		
Integrity of Reactor Component Piping Integrity.....	1,080	.5
Prevent Reactor Core Damage—Modeling.....	800	.7
Reactor Containment Safety—Integrated Codes and Applications	1,128	.9
Resolve Safety Issues.....	40	.4
	\$3,048	2.5
L. GE—Mark I		
Reactor Containment Safety—Core/Concrete Interactions	400	.2
M. GE—Mark II		
Reactor Accident Risk Analysis—Assessment of Plant Risks.....	400	.6
N. GE—Mark II & III		
Severe Accident Implementation—Severe Accident Policy Implementation	325	.9

The costs to NRC for these programs should be paid for on a prorata basis, by all plants included in the specified categories. By adding the program support costs to the NRC staff cost for each category of effort and prorating these costs over the population (plants) of that category, a fee is established which requires those licensees who require the greatest expenditure of NRC resources to pay the largest annual fee.

TABLE V.—ANNUAL FEES FOR OPERATING POWER REACTORS, FY 1989

	Containment type	Annual fee
Westinghouse reactors:		
1. Beaver Valley	PWR—Large dry containment.	\$1,135,000
2. Beaver Valley	.....do.....	1,135,000
3. Braidwood 1	.....do.....	1,135,000
4. Braidwood 2	.....do.....	1,135,000
5. Byron 1	.....do.....	1,135,000
6. Byron 2	.....do.....	1,135,000
7. Callaway 1	.....do.....	1,135,000
8. Diablo Canyon 1.	.....do.....	1,124,000
9. Diablo Canyon 2.	.....do.....	1,124,000
10. Farley 1	.....do.....	1,135,000
11. Farley 2	.....do.....	1,135,000
12. Ginna	.....do.....	1,135,000
13. Haddam Neck.	.....do.....	1,135,000
14. Harris 1	.....do.....	1,135,000
15. Indian Point 2.	.....do.....	1,135,000
16. Indian Point 3.	.....do.....	1,135,000
17. Kewaunee	.....do.....	1,135,000
18. Millstone 3	.....do.....	1,135,000
19. North Anna 1.	.....do.....	1,135,000
20. North Anna 2.	.....do.....	1,135,000
21. Point Beach 1.	.....do.....	1,135,000

TABLE V.—ANNUAL FEES FOR OPERATING POWER REACTORS, FY 1989—Continued

	Containment type	Annual fee
22. Point Beach 2.	.....do.....	1,135,000
23. Prairie Island 1.	.....do.....	1,135,000
24. Prairie Island 2.	.....do.....	1,135,000
25. Robinson 2	.....do.....	1,135,000
26. Salem 1	.....do.....	1,135,000
27. Salem 2	.....do.....	1,135,000
28. San Onofre 1.	.....do.....	1,124,000
29. Seabrook 1	.....do.....	1,135,000
30. South Texas 1.	.....do.....	1,135,000
31. Summer 1	.....do.....	1,135,000
32. Surry 1	.....do.....	1,135,000
33. Surry 2	.....do.....	1,135,000
34. Trojan	.....do.....	1,124,000
35. Turkey Point 3.	.....do.....	1,135,000
36. Turkey Point 4.	.....do.....	1,135,000
37. Vogtle 1	.....do.....	1,135,000
38. Wolf Creek 1.	.....do.....	1,135,000
39. Zion 1	.....do.....	1,135,000
40. Zion 2	.....do.....	1,135,000
41. Catawba 1	PWR—Ice condenser.	1,130,000
42. Catawba 2	.....do.....	1,130,000
43. Cook 1	.....do.....	1,130,000
44. Cook 2	.....do.....	1,130,000
45. McGuire 1	.....do.....	1,130,000
46. McGuire 2	.....do.....	1,130,000
47. Sequoyah 1	.....do.....	1,130,000
48. Sequoyah 2	.....do.....	1,130,000
Combustion engineering reactors:		
1. Arkansas 2	PWR—Large dry containment.	1,168,000
2. Calvert Cliffs 1.	.....do.....	1,168,000
3. Calvert Cliffs 2.	.....do.....	1,168,000
4. Ft. Calhoun 1.	.....do.....	1,168,000
5. Maine Yankee.	.....do.....	1,168,000

TABLE V.—ANNUAL FEES FOR OPERATING POWER REACTORS, FY 1989—Continued

	Containment type	Annual fee
6. Millstone 2	.....do.....	1,168,000
7. Palisades	.....do.....	1,168,000
8. Palo Verde 1	.....do.....	1,157,000
9. Palo Verde 2	.....do.....	1,157,000
10. Palo Verde 3.	.....do.....	1,157,000
11. San Onofre 2.	.....do.....	1,157,000
12. San Onofre 3.	.....do.....	1,157,000
13. St. Lucie 1	.....do.....	1,168,000
14. St. Lucie 2	.....do.....	1,168,000
15. Waterford 3	.....do.....	1,168,000
Babcock & Wilcox reactors:		
1. Arkansas 1	PWR—Large dry containment.	1,592,000
2. Crystal River 3.	.....do.....	1,592,000
3. Davis Besse 1.	.....do.....	1,592,000
4. Oconee 1	.....do.....	1,592,000
5. Oconee 2	.....do.....	1,592,000
6. Oconee 3	.....do.....	1,592,000
7. Rancho Seco 1.	.....do.....	1,581,000
8. Three Mile Island 1.	.....do.....	1,592,000
General Electric plants:		
1. Browns Ferry	Mark I	1,133,000
2. Browns Ferry 1.	.....do.....	1,133,000
3. Browns Ferry 2.	.....do.....	1,133,000
4. Brunswick 1	.....do.....	1,133,000
5. Brunswick 2	.....do.....	1,133,000
6. Clinton 1	Mark III	1,153,000
7. Cooper	Mark I	1,133,000
8. Dresden 2	.....do.....	1,133,000
9. Dresden 3	.....do.....	1,133,000
10. Duane Arnold.do.....	1,133,000
11. Fermi 2do.....	1,133,000
12. Fitzpatrickdo.....	1,133,000

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TABLE V.—ANNUAL FEES FOR OPERATING POWER REACTORS, FY 1989—Continued

	Containment type	Annual fee
13. Grand Gulf 1.	Mark III	1,153,000
14. Hatch 1	Mark I	1,133,000
15. Hatch 2	do	1,133,000
16. Hope Creek 1.	do	1,133,000
17. LaSalle 1	Mark II	1,212,000
18. LaSalle 2	Mark II	1,212,000
19. Limerick 1	do	1,212,000
20. Millstone 1	Mark I	1,133,000
21. Monticello	do	1,133,000
22. Nine Mile Point 1.	do	1,133,000
23. Nine Mile Point 2.	Mark II	1,212,000
24. Oyster Creek	Mark I	1,133,000
25. Peach Bottom 2.	do	1,133,000
26. Peach Bottom 3.	do	1,133,000
27. Perry 1	Mark III	1,153,000
28. Pilgrim 1	Mark I	1,133,000
29. Quad Cities 1.	do	1,133,000
30. Quad Cities 2.	do	1,133,000
31. River Bend 1.	Mark III	1,153,000
32. Susquehanna 1.	Mark II	1,212,000
33. Susquehanna 2.	do	1,212,000
34. Vermont Yankee	Mark I	1,133,000
35. Washington Nuclear 2.	Mark II	1,200,000
Other Reactors: ¹		
1. Three Mile Island 2.	B&W—PWR—Dry containment.	1,592,000
2. Shoreham	GE—Mark II	1,212,000
3. Big Rock Point	GE—Dry containment.	1,118,000
4. Yankee Rowe	Westinghouse—PWR—Dry containment.	1,135,000
5. Ft. St. Vrain	High temperature gas cooled.	822,000

¹ These licensed reactors have not been included in the fee base since historically they have been granted either full or partial exemptions from the annual fees. The fees shown for these reactors are those fees for the particular type of reactor, no adjustments have been made based on size or particular circumstance of the reactor. Nonetheless, unless full waivers are granted, these licensees will pay at least a portion of the amount specified above.

Section 171.21 Refunds.

This section is being eliminated. Under current legislation, at least 45 percent should be collected. No refunds will be provided, although the fees will be calculated in such a manner as to not greatly exceed the 45 percent floor imposed by the legislation.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described

in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

VII. Regulatory Analysis

Section 7601 of COBRA required the NRC, by rule, to establish an annual charge for regulatory services provided to its applicants and licensees, that when added to other amounts collected, equaled up to 33 percent of Commission costs in providing those services. Section 5601 of the Omnibus Budget Reconciliation Act of 1987 requires that the NRC, for the fiscal years 1988 and 1989, increase the moneys collected pursuant to section 7601 and other authority to at least 45 percent of the Commission's costs. For FY 1988, the NRC issued an interim rule which raised the collection of annual fees to be at least 45 percent of its budget and accordingly raised the annual fee for operating power reactors. For FY 1989 the NRC is revising its fee schedules in 10 CFR Part 170 to remove the fee ceilings on certain categories, to revise its professional hourly rate to reflect inflationary and other increases since FY 1981, to revise the ceiling of 33 percent contained in 10 CFR Part 171 to a target which approximates but will be at least 45 percent, and to include the collection of moneys from the High Level Waste Fund administered by the Department of Energy.

This final rule will not have significant impacts on state and local governments and geographical regions; on health, safety, and the environment; or, create substantial costs to licensees, the NRC, or other Federal agencies. The foregoing discussion constitutes the regulatory analysis for this final rule.

VIII. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. In the notice of proposed rulemaking published on June 27, 1988 (53 FR 24085), the NRC invited any licensee who considered itself to be a small entity subject to this regulation who determines that, because of its size, it is likely to bear a disproportionate

adverse economic impact to notify the Commission by providing responses to four general questions. The proposed rule was mailed to approximately 10,000 licensees under 10 CFR Parts 30 through 35, 39, 40, 50, 60, 61 and 70 through 73. About 9,000 of the licensees could be considered small entities, particularly in the area of materials licensing under 10 CFR Parts 30 through 35 and 39. Of the 32 letters of comments received, only twelve were from licensees in the materials category and interest area. Of the twelve, only one licensee addressed the four questions on the impact as a small entity. This commenter was concerned that the removal of ceilings for topical reports, dry storage systems, and transport packages would have a much greater impact on that company than it would on a larger company and place an unfair competitive burden on small entities. It is readily recognized that this final rule will cause some licensees to pay more fees for topical report reviews and other services. However, the financial impact is related to the services provided by the NRC. The size of the licensee is not a factor in the costs imposed. Based upon the number of comments received on the proposed rule and on analysis of these comments, the NRC believes that this rule will not have a significant economic impact upon a substantial number of small entities.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and therefore, that a backfit analysis is not required for it because the final rule does not impose any new, more stringent safety requirements on Part 50 licensees.

List of Subjects

10 CFR Part 170

Byproduct material, Nuclear materials, Nuclear power plants and reactors, Penalty, Source material, Special nuclear material.

10 CFR Part 171

Annual charges, Nuclear power plants and reactors, Penalty.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 170 and 171.

PART 171 STATEMENTS OF CONSIDERATION

55 FR 51401
Published 12/14/90.

*Miscellaneous Amendments;
Correction*

See Part 2 Statements of Consideration

56 FR 31472
Published 7/10/91
Effective 8/9/91

*Revision of Fee Schedules; 100% Fee
Recovery*

See Part 170 Statements of Consideration

56 FR 37828
Published 8/9/91
Effective 8/9/91

*Revision of Fee Schedules; 100% Fee
Recovery, Correction*

See Part 170 Statements of
Consideration

56 FR 57587
Published 11/13/91
Effective 11/13/91

10 CFR Part 171
RIN 3150-AE05

**Revision of Fee Schedules; 100% Fee
Recovery; Clarification of Size
Standards**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations concerning the payment of annual fees to clarify the provisions that identify the size standards used to determine whether an NRC licensee would qualify as a "small entity" under the Regulatory Flexibility Act for the purpose of paying a reduced annual fee. This clarification is necessary because the size standards presented in the regulations did not clearly indicate the complete range of size standards adopted by the NRC.

EFFECTIVE DATE: November 13, 1991.

FOR FURTHER INFORMATION CONTACT: Donnie H. Grimsley, Director, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7211.

SUPPLEMENTARY INFORMATION: On July 10, 1991 (56 FR 31472), the NRC published a final rule amending 10 CFR

parts 170 and 171 as required by Public Law 101-508, which mandates that the NRC recover approximately 100 percent of its budget authority in Fiscal Year 1991 and the four succeeding years through license fees. In order to reduce the impact of the increase in fees imposed on small entities, the NRC imposed a maximum annual fee of \$1,800 for each category for those licensees who qualify as small entities under its size standards.

On December 9, 1985 (50 FR 50241), the NRC adopted size standards it would use to determine whether an NRC licensee would be considered a small entity for the purpose of implementing requirements of the Regulatory Flexibility Act. The July 10, 1991, final rule repeated the size standards presented in the December 9, 1985, notice to inform affected licensees of the criteria to be used for determining whether or not they would be eligible for a reduced fee. However, neither the size standards general notice nor the fee schedule final rule clearly and completely identified the standards that were adopted by the NRC in December 1985.

On November 6, 1991 (56 FR 56671), the NRC published a general notice that restated its size standards to clearly identify the different classes of licensees affected and the standard that is applied to each class of licensee. Specifically, the general notice added the Regulatory Flexibility Act's definition of small governmental jurisdiction adopted by the NRC but not included in either the 1985 notice announcing the adoption of the size standards or in § 171.16 where the size standards were restated for the benefit of those licensees who are required to pay annual license fees. Also, to further improve clarity, the NRC reorganized the clarified size standards in a manner that conformed the presentation of its standards to the listing of definitions of small entities in the Regulatory Flexibility Act.

Because these amendments constitute a clarification of a matter involving agency practice and procedure, the notice and comment provisions of the Administrative Procedure Act do not apply pursuant to 5 U.S.C. 553(b)(A). The amendments are effective upon publication in the Federal Register. Good cause exists to dispense with the usual 30-day delay in the effective date because the amendments are of an administrative nature in that they clarify the size standards that NRC uses to determine a licensee's eligibility to pay a reduced annual fee.

Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR

51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental impact assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

Regulatory Analysis

The Commission has prepared a regulatory analysis for its final rule implementing the provisions of Public Law 101-508 that require the NRC to recover approximately 100 percent of its budget authority in Fiscal Year 1991 and the succeeding four years. The regulatory analysis was published as part of that final rule (56 FR 31497; July 10, 1991). This final rule does not alter the conclusions reached in that regulatory analysis. This final rule is intended to clarify the size standards that the NRC will use in determining whether a licensee may qualify as a small entity for the purpose of paying a reduced annual fee. Therefore, this final rule constitutes an administrative action that would not, of itself, have an economic impact on any class of licensees. By restating the size standards adopted by the NRC more clearly and explicitly, the final rule would allow a licensee to understand more easily the criteria to be used in determining whether the licensee would qualify as a small entity for the purpose of paying a reduced annual fee. Therefore the final rule may benefit both the NRC and its licensees. This constitutes the regulatory analysis for this final rule.

Backfit Analysis

The NRC has determined that the backfit rule 10 CFR 50.109 does not apply to this final rule, and therefore, that a backfit analysis is not required for this final rule, because these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Part 171

Annual charges, Byproduct material, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material, Holders of certificates, registrations, or approvals, Penalties.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to 10 CFR part 171.

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57 FR 13625

Published 4/17/92

Effective 5/18/92

Limited Revision of Fee Schedules

See Part 170 Statements of Consideration

57 FR 19458

Published 5/6/92

*Limited Revision of Fee Schedules:
Correction*

See Part 170 Statements of Consideration

57 FR 32691

Published 7/23/92

Effective 8/24/92

*Revision of Fee Schedules; 100% Fee
Recovery, FY 1992*

See Part 170 Statements of Consideration

57 FR 39421

Published 8/31/92

*Revision of Fee Schedules; 100% Fee
Recovery, FY 1992; Correction*

See Part 170 Statements of Consideration

58 FR 38666

Published 7/20/93

Effective 8/19/93

*FY 1991 and 1992 Final Rule
Implementing the U.S. Court of
Appeals Decision and Revision of Fee
Schedules; 100% Fee Recovery,
FY 1993*

See Part 170 Statements of Consideration

58 FR 45553

Published 8/30/93

*FY 1991 and 1992 Final Rule
Implementing the U.S. Court of
Appeals Decision and Revision of Fee
Schedules; 100% Fee Recovery, FY
1993; Correction*

See Part 170 Statements of Consideration

59 FR 12539

Published 3/17/94

Effective 4/18/94

10 CFR Part 171

RIN 3150-AE83

Restoration of the Generic Exemption From Annual Fees for Nonprofit Educational Institutions

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: On September 29, 1993 (58 FR 50859), the Nuclear Regulatory Commission ("NRC" or "Commission") published a proposed rule granting a petition for rulemaking submitted by a number of colleges and universities possessing NRC licenses. The petition requested that the NRC reinstate the exemption from annual fees previously given nonprofit educational licensees. The proposed rule requested public comment solely on that issue. The exemption had been eliminated in a final rule published in the *Federal Register* on July 20, 1993. After careful consideration, the Commission has decided to reinstate the annual fee exemption for nonprofit educational institutions.

EFFECTIVE DATE: April 18, 1994.

FOR FURTHER INFORMATION CONTACT: L. Michael Rafky, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-504-1974.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Responses to comments.
- III. Final action—changes included in final rule.
- IV. Section-by-section analysis.
- V. Environmental impact: categorical exclusion.
- VI. Paperwork reduction act statement.
- VII. Regulatory analysis.
- VIII. Regulatory flexibility certification.
- IX. Backfit analysis.

I. Background

Soon after publishing its final rule establishing the NRC's FY 1993 fee schedules (58 FR 38666; July 20, 1993), which included for the first time annual fees for previously exempt nonprofit educational institutions¹, the Commission received a petition for reconsideration of that rule. The petition, filed by a number of colleges and universities affected by the policy change, requested that the NRC reconsider its decision to charge annual fees to such institutions. The petition asserted that the externalized benefits and public good resulting from use of university research reactors in various fields of education would be lost if these fees were imposed upon college and university licensees. (See *Petition for Reconsideration of Final Rule* (July 30, 1993) (appended to the Proposed Rule for the Restoration of the Annual Fee Exemption to Nonprofit Educational Institutions, 58 FR 50859; September 29, 1993.)) The petition pointed to research in such fields as nuclear safety, medicine, archaeology, food science and textiles, education of the public in nuclear matters, and to various benefits of education.

The petition relied upon a letter from economist Alfred Kahn to counsel for Cornell University, a petition signatory. The Kahn letter referred to "pure knowledge," especially nonproprietary university research made accessible to the public free of charge, as "the archetypical 'public good,' in economic terms, the essential characteristic of which is that, once produced, it can be made available more and more widely at zero economic cost."

While considering whether to grant the petition for reconsideration, or in the alternative to grant some nonprofit educational institutions individual "public interest" exemptions from the new annual fees, the NRC sent staff members to a number of colleges and universities to learn more about the use of nuclear materials in educational programs and the benefits that resulted from those materials' use. The Commission concluded, on the basis of these visits and the arguments made in the petition for reconsideration, that it

¹ The NRC's elimination of the exemption was prompted in part by a court decision questioning the exemption's lawfulness. *Allied-Signal v. NRC*, 988 F.2d 146 (DC Cir. 1993).

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should propose to retract the new annual fees (\$62,100 per research reactor license; lesser amounts for each materials license). Accordingly, on September 29, 1993 (58 FR 50859), the Commission published in the *Federal Register* a notice granting the petition and proposing to restore the annual fee exemption for nonprofit educational institutions.

The Commission received over 200 comments on the proposed rule, with the vast majority in favor of restoring the annual fee exemption. (This number includes comments on the educational exemption provided to the Commission in response to its Congressionally-mandated study of overall agency fee policy, see 58 FR 21116; April 14, 1993). After careful review of the comments, and after studying the views of a professional economist engaged to assist in analyzing the comments (see note 2 *infra*), the Commission has decided to make final its proposed reinstatement of the exemption from annual fees for nonprofit educational institutions.

As the Commission made clear in the proposed rule, it will not charge other licensees retroactively for the monetary shortfall produced by the Commission's change in policy on the educational exemption. Therefore, for FY 1993 no licensees will be charged additional fees to compensate for the restored exemption. In addition, because the educational exemption is being restored for FYs 1991-92, there will be no refunds to power reactor licensees who paid increased annual fees in those years due to the exemption of nonprofit educational institutions (a point also detailed in the proposed rule).

II. Responses to Comments

Although the comment period expired on October 29, 1993, the NRC reviewed all comments received prior to November 13, 1993. The Commission received over 200 comments in response to the proposed rule. Copies of all comment letters received are available for inspection in the NRC Public Document Room ("PDR"), 2120 L Street, NW. (Lower Level), Washington, DC 20555.

1. *Comment.* Most commenters were educational institutions, who argued that their educational and research activities with licensed nuclear materials will have to be severely curtailed or halted altogether if the annual fee exemption is not restored. They claimed that the annual fees would, in many cases, entirely subsume the budget for operation of the research

reactor or use of nuclear material. Many commenters also stated that there was no possibility of obtaining more money for their operating budgets, and that the inevitable result of annual fees would therefore be an across-the-board reduction in nuclear-related studies.

Response. The Commission is aware of the effect annual fees could have on nonprofit educational institutions, not only from their comments but also from its own site visits. The Commission believes that much of the work done by these institutions with nuclear materials, in both nuclear and non-nuclear fields of study, is extremely valuable and should not be impeded or halted due to the new annual fees. Further, for reasons discussed later, subsidies for such activities are both necessary and desirable.

2. *Comment.* A number of comments received from nonprofit educational institutions stated that their work produced externalized benefits to society, in the words used in the DC Circuit's *Allied-Signal* decision, "not captured in tuition or other market prices." Among the benefits cited were research in fields such as nuclear safety, neutron activation analysis, neutron radiography, archaeology, art history and biology. Much of this research, some commenters claimed, was basic research done to advance science, not for profit or commercial use (although such an outcome might occur). One commenter noted that it does not accept research grants and contracts without making them public, and publishes virtually all its findings. The commenters asserted that this research, if halted due to new fees, would not likely be duplicated or replaced by the private sector.

Response. The Commission agrees with commenters that much of the work done with nuclear materials in academia, if halted, would simply not be continued in the private sector. In particular, the Commission was impressed by the arguments made regarding basic research. The Commission believes that such research, done in the spirit of academic inquiry, is an integral part of the programs run by educational institutions with NRC licenses.

The Commission agrees with commenters' arguments that educational institutions' commitment to basic research is largely unique, as it is not driven by the need to develop commercial uses. While there is undoubtedly much basic research performed outside educational institutions, the Commission does not

believe that it is an adequate substitute for academic research.

In the Commission's view, a major benefit resulting from educational institutions' use of nuclear reactors and materials is the production of new knowledge through research, which the Commission would term a "public good," as defined in economic theory.² Two characteristics of a public good like pure knowledge are its nondepletable and nonexcludability. That is, one person's acquisition of knowledge does not reduce the amount available to others; further, it is not efficient—and often is impossible, as a practical matter—to prevent others from acquiring it. These characteristics make it difficult to recoup the costs of producing pure knowledge. Because the value of a public good may be very great, but the costs of producing it impossible to recapture, it may be necessary to subsidize that good's production for production to occur at all. In the Commission's view, that is true of the pure knowledge produced by nonprofit educational institutions, and the Commission has therefore decided to exempt them from fees.

Restoring the educational exemption will have additional beneficial consequences. Colleges and universities not only produce research results and pure knowledge (what we have termed "public goods"), but also other benefits of great value to both the nuclear community and society as a whole. For instance, many of the students trained on research reactors will likely become the next generation of nuclear reactor operators and engineers. The knowledge they gain from their education in these fields will allow them to operate reactors and other nuclear facilities safely and effectively. Knowledge attained through education will also be of value to those companies or Government agencies, including the armed forces, who hire these students to perform nuclear-related work, which often cannot be done without extensive education in the area.

3. *Comment.* A number of commenters argued, for a variety of reasons, that the educational exemption should not be restored. Some commenters stated that each licensee

² The Commission's analysis of this concept was aided by a memorandum prepared by an NRC consultant on the issues of external benefits and public goods. The memorandum has been placed in the NRC PDR and may be examined by any interested member of the public. See Memorandum to NRC Staff from Stephen J.K. Walters, Professor of Economics, Loyola College (Md.), dated January 4, 1994.

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should pay its fair share. Others believed that for-profit entities benefit the public as well and should not be penalized because they generate profits. Certain nonprofit commenters and medical licensees argued that if the exemption were retained, it should be expanded to include nonprofit institutions and medical licensees that are not now exempted from fees. A few commenters stated that in certain fields of study, schools and university hospitals compete with private research laboratories and nonprofit hospitals, respectively, and thus would receive an unfair subsidy from an annual fee exemption. One commenter went on to argue that such a subsidy amounted to an unlawful promotion of atomic energy by the NRC. Another commenter requested that the proposed rule be changed to exempt it from the annual fee, noting that it was the only Federally-owned research reactor not so exempted, due to the level of its power output.

A number of other commenters supported restoration of the educational exemption, but believed it should be funded in a different manner. The two alternatives most popular with commenters were funding the exemption out of general revenues, which would mean removing it from the fee base, or funding it via a surcharge on all licensees, not just power reactor licensees. Those commenters favoring removal of the educational exemption from the fee base acknowledged that such an outcome would require Congressional legislation.

Response. After deliberating over whether the educational exemption should be restored, the Commission believes the wisest policy decision is to exempt nonprofit educational licensees once again. Since the Commission published its final rule in July 1993 abolishing the educational exemption, it has devoted an extraordinary amount of time and attention to the question of whether to reverse that decision. It has reviewed hundreds of letters on the issue, fielded numerous phone comments and inquiries, and sent staff members to study the issue by visiting college and university licensees. In the Commission's view, the evidence taken as a whole leans strongly in favor of restoring that exemption, for the reasons described above: that many educational licensees would be forced to halt their research and educational activities due to lack of funds if NRC fee subsidies were withdrawn; that those activities would often not be continued in the private sector, resulting in a serious loss of basic research in numerous areas of study; and that the public good inherent

in the production of knowledge made available to all is worthy of Government support. Such support would not therefore constitute an unlawful subsidy or promotion of atomic energy.

The Commission has received anecdotal information from some commenters indicating that certain nonprofit research institutions (which do not fall within the definition of nonprofit educational institution as provided in 10 CFR 171.5) and Federally-owned research reactors should receive the same treatment as educational institutions.³ However, the Commission does not believe it has sufficient information on which to base a generic exemption for such research institutions and reactors. Because the proposed rule did not suggest that the educational exemption be expanded in this way, the Commission received a smaller number of comments than are needed to make an informed decision on this issue. For that reason, the current policy of charging such entities annual and user fees remains in effect. Those nonprofit research institutions and Federally-owned research reactors who believe that they qualify for an exemption from the annual fee based on the public good concept are, of course, free to request one from the Commission. See 10 CFR 171.11. Depending on the outcome of any such requests, the Commission may need to revisit the question of whether to make nonprofit research institutions generically exempt from fees in a future rulemaking.

The Commission also believes that medical licensees should continue to pay annual fees. This is consistent with past Commission practice. Contrary to some commenters' assertions, the Commission's fee policy does not result in a competitive advantage for university medical licensees over nonprofit hospitals. Both are charged fees for licenses authorizing medical treatment using licensed nuclear material.⁴ The Commission does not believe that medical licensees are analogous to nonprofit educational institutions. Their function is not pure

research and education, but primarily to provide services to paying customers.

While the Commission does not dispute that medicine provides significant benefits to patients, such treatment is both depletable and excludable. The benefits of medicine are therefore a private rather than a public good. By contrast, an educational institution generally disseminates the results of its basic research to all who want it, even going beyond the confines of the university itself, without receiving compensation from any of those benefitting from that knowledge. The key to nonprofit educational licensees' singular treatment is not merely that they provide valuable social benefits; rather, it is the existence of certain market failure considerations (discussed above) that apply to producers of pure knowledge through basic research, but not to medical practitioners. The distinction between educational and medical licensees is addressed at greater length in the Commission's Federal Register notice discussing the petition filed by the American College of Nuclear Physicians and the Society of Nuclear Medicine seeking a fee exemption for medical licensees (published in the Proposed Rule Section of this issue of the Federal Register).

The Commission does not plan to adopt the suggestion of some commenters that most or all other licensees should contribute something toward the costs of exempting nonprofit educational licensees. The agency, in any event, is not recouping these costs for FY 1993, as it is legally precluded from retroactively collecting those costs from licensees. The Commission in its Energy Policy Act-mandated review of fee policy has concluded that the costs of exempting nonprofit educational institutions should be excluded from the fee base through legislation modifying OBRA-90. In its study, the Commission concluded that if legislation to accomplish this is not enacted, these costs should continue to be recovered through fees assessed to power reactor licensees.

4. Comment. A number of commenters have argued that the Atomic Energy Act of 1954, as amended ("AEA"), mandates NRC support of education, and that accordingly the NRC must restore the educational exemption to conform to that mandate. In this regard, some commenters made the point that their facilities were originally funded or provided to them by the AEC or other Federal agencies.

Response. The Commission acknowledges its longstanding policy of supporting education, and believes that

³ Most Federally-owned research reactors were exempted from fees by Congress in earlier legislation. See section 6101(c)(4) of OBRA-90, 42 U.S.C. 2214(c), as amended by the Energy Policy Act of 1992. However, the reactor in question operates at a power level greater than that specified in the legislation for exempt facilities, and therefore does not meet the definition of a "research reactor" for purposes of the statutory exemption.

⁴ Similarly, materials licenses held by nonprofit educational institutions which authorize remunerated services or services performed under a Government contract are also subject to fees. See 10 CFR 170.11(a)(4) and 171.11(a)(1) (1993).

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such support has been vital to the success of nuclear and nuclear-related education. That notwithstanding, the Commission does not view its education policy, or the exhortatory language of the AEA, as mandating that colleges and universities be exempt from NRC fees. The Commission has decided to restore the fee exemption as a policy matter, not a matter of legal compulsion.

5. *Comment.* Many educational institutions commented that it made little sense to charge them annual fees when much of their nuclear-education funding was derived from Federal agencies such as the Department of Energy and the National Science Foundation. Another commenter argued that State agencies were nonprofit in nature and should be exempted in the same manner as colleges and universities.

Response. The Commission for reasons discussed above decided to reinstate the exemption for nonprofit educational institutions. The fact that a number of these institutions received funding from Federal agencies was not a factor in the final decision. The Commission's decision was based primarily on who received the benefits of the services rendered, rather than who funded the underlying activities.

The Commission also notes that it charges fees to other governmental licensees, including both Federal and State agencies. (Virtually no Federal agencies are charged user fees under part 170 due to a prohibition against such fees in the Independent Offices Appropriation Act, see 31 U.S.C. 9701.) It finds no basis for changing its historical policy with respect to these entities in this rulemaking. This issue is addressed in the Commission's Report to Congress on fee policy, cited earlier in this rulemaking.

6. *Comment.* Some educational commenters stated that they should fall under the category of small entities, and asked whether the definition of "small entity" could be broadened to include a greater number of institutions than currently fall within the definition.

Response. The Commission intends to re-examine the size standards it uses to define small entities within the context of compliance with the Regulatory Flexibility Act. The Commission will conduct this review within the context of the proposed revisions of small business size standards proposed by the Small Business Administration ("SBA") (58 FR 46573; September 2, 1993). The Commission will not complete its review until the SBA promulgates a final rule containing the revised size standards. Until these activities are

completed, it would be premature to address this comment.

III. Final Action—Changes Included in Final Rule

The Commission has made only one change to its FY 1993 final rule establishing annual and user fee schedules for that fiscal year. As it proposed, the Commission has amended § 171.11 to exempt nonprofit educational institutions from annual fees. The new exemption provision is identical to that contained in the FY 1991 and 1992 final fee rules. Because the final fee schedule for FY 1993 has already been issued, the Commission will not be charging any other licensees for the fees that would have been paid for FY 1993 by the newly exempt group of licensees. For that reason, no new fee schedule is being published at this time. A revised NRC fee schedule incorporating these changes and billing other licensees for the FY 1994 exemption's costs will be included in the FY 1994 proposed fee rule.

Because the Commission has decided in this final rule to reinstate the annual fee exemption for nonprofit educational institutions, the NRC will cancel the FY 1993 annual fee invoices for those licensed activities exempt under this final rule. Accordingly, refunds will be made to those licensees who paid the FY 1993 annual fees and are now exempt under this final rule. Additionally, no further action will be taken on nonprofit educational institutions' exemption requests, which had been held in abeyance pending this final rule.

Some nonprofit educational institutions filed applications requesting termination, downgraded, possession-only or combined licenses to avoid the FY 1993 annual fee. If those applications are still pending, the licensees should notify the NRC within 30 calendar days from the effective date of this rule if they wish to rescind their applications due to the exemption's reinstatement. Absent such notification, the NRC will process the applications as filed. There are instances where the NRC has already completed final action on some of the applications in question. The affected nonprofit educational institutions are advised that if they wish to reinstate their previous license authority, they must file an application to do so with the NRC. Such applications for reinstatement of previous license authority are exempted from fees under 10 CFR 170.11(a)(4) as appropriate.

IV. Section-by-Section Analysis

Section 171.11 Exemptions

Paragraph (a) of this section is amended by adding nonprofit educational institutions, as defined in § 171.5, to the list of those entities exempted from annual fees by the Commission. A discussion of this change in fee policy is found in Sections I and II of this final rule.

V. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental assessment nor an environmental impact statement has been prepared for the final regulation.

VI. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

VII. Regulatory Analysis

With respect to 10 CFR part 171, on November 5, 1990 the Congress passed Public Law No. 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). OBRA-90, as amended, requires that for FYs 1991 through 1998 approximately 100 percent of the NRC's budget authority be recovered through the assessment of fees. To accomplish this statutory requirement, on July 20, 1993 (58 FR 38666), the NRC, in accordance with § 171.13, published in the Federal Register the final amount of the FY 1993 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, and holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies. Consistent with OBRA-90 and its Conference Committee Report, the Commission has ensured that—

(1) The annual fees are based on the Commission's FY 1993 budget of \$540 million less the amounts collected from part 170 fees and the funds directly appropriated from the Nuclear Waste Fund to cover the NRC's high level waste program;

(2) The annual fees, to the maximum extent practicable, have a reasonable relationship to the cost of regulatory services provided by the Commission; and

(3) Annual fees are assessed to those licensees which the Commission, in its discretion, determines can fairly,

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equitably and practicably contribute to their payment.

Therefore, when developing the annual fees for operating power reactors, the NRC continues to consider the various reactor vendors, the types of containment, and the location of those reactors. The annual fees for fuel cycle licensees, materials licensees, and holders of certificates, registrations and approvals and for licenses issued to Government agencies take into account the type of facility or approval and the classes of the licensees.

10 CFR part 171, which established annual fees for operating power reactors effective October 20, 1986 (51 FR 33224; September 18, 1986), was challenged and upheld in its entirety in *Florida Power and Light Company v. United States*, 846 F.2d 765 (DC Cir. 1988), *cert denied*, 490 U.S. 1045 (1989).

10 CFR part 171, which established fees based on the FY 1989 budget, was also legally challenged. As a result of the Supreme Court decision in *Skinner v. Mid-American Pipeline Co.*, 109 S.Ct. 1726 (1989), and the denial of certiorari in *Florida Power and Light*, all of the lawsuits were withdrawn.

The NRC's FY 1991 annual fee rule was largely upheld recently by the DC Circuit Court of Appeals in *Allied-Signal v. NRC*, 988 F.2d 146 (DC Cir. 1993).

VIII. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this final rule as adopted does not have a significant economic impact on a substantial number of small entities.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

List of Subjects in 10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, registrations, and approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC hereby adopts the following amendments to 10 CFR part 171.

59 FR 26097
Published 5/19/94
Effective 5/19/94

10 CFR Part 171

RIN 3150-AE99

Establishment of Revised FY 1991 and FY 1992 Annual Fee Surcharges

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: On July 20, 1993 (58 FR 38666), the Nuclear Regulatory Commission ("NRC" or "Commission") published a final rule as a result of the U.S. Court of Appeals decision dated March 16, 1993. The final rule changed the method of allocating low-level waste costs for FY 1993 in response to the court's decision. In its FY 1993 final rule, the NRC indicated that it was adopting the FY 1993 approach for FY 1991 and FY 1992 and would separately publish a final rule revising the FY 1991 and FY 1992 surcharges. This final rule establishes those revised surcharges for NRC licensees for FY 1991 and FY 1992. The NRC will make refunds to certain materials licensees based on the amounts of the revised surcharges.

EFFECTIVE DATE: May 19, 1994.

FOR FURTHER INFORMATION CONTACT: C. James Holloway, Jr., Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-492-4301.

SUPPLEMENTARY INFORMATION:

- I. Background.
- II. Final action—revised FY 1991 and FY 1992 annual fee surcharges.
- III. Administrative Procedure Act: Waiver.
- IV. Environmental Impact: Categorical Exclusion.
- V. Paperwork Reduction Act Statement.
- VI. Regulatory Analysis.
- VII. Regulatory Flexibility Analysis.
- VIII. Backfit Analysis.

I. Background

On March 16, 1993, the U.S. Court of Appeals for the District of Columbia Circuit decided *Allied-Signal, Inc., v. U.S. Nuclear Regulatory Commission and the United States of America*, 988 F.2d 146 (D.C. Cir. 1993). The court questioned the NRC's decision to allocate generic costs associated with low-level waste (LLW) disposal by classes of licensees, rather than by individual licensee. The Court remanded only the FY 1991 rule; however, the FY 1992 rule raised identical questions and a challenge to that rule was subsequently remanded by the court.

In response to the Court's opinion, the NRC, in its final fee rule for FY 1993 published on July 20, 1993 (58 FR 38669), changed its method of allocating LLW costs to NRC licensees after providing for notice and comment on four alternative methods of LLW cost allocation and possible variations of those alternatives. Based on the comments received, the NRC, for FY 1993, created two groups—large waste generators and small waste generators. Licensees within each group are charged a uniform flat fee. In its final FY 1993 rule, the NRC also adopted this approach for FY 1991 and FY 1992, indicating that it would publish separately final revised FY 1991 and FY 1992 surcharge schedules resulting from changes in the allocations of NRC LLW budgeted generic costs. This rulemaking notice completes agency action on the proposed rule issued for public comment on April 23, 1993 (58 FR 21662) and implements the ministerial calculations called for in the July 20, 1993 final rule.

The agency workpapers that support these final changes to 10 CFR part 171 for FY 1991 and FY 1992 are available in the Public Document Room at 2120 L Street, NW., Washington, DC, in the lower level of the Gelman Building.

II. Final Action—Revised FY 1991 and 1992 Fee Surcharges

This final rule establishes the revised FY 1991 and FY 1992 surcharges for NRC licensees based on the allocation method of low-level waste costs described and used in the FY 1993 final rule.

The revised method of allocation, described in detail in the FY 1993 final rule published on July 20, 1993 (58 FR 38669), allocates the LLW costs between two groups: large generators (power reactors and large fuel facilities), and small generators (all other LLW-

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producing licensees). Waste generators in the large group are each expected to generate more than 1,000 cubic feet of LLW per year. The allocation of LLW costs to the two groups is based on the historical average amount of waste disposed by the two groups. The result is that 82 percent and 18 percent of the costs are allocated to the large and small generator groups, respectively. Within each of the two groups, all licensees pay the same LLW fee (surcharge).

The amounts of the surcharges for the two groups using the revised method for FY 1991 are shown in §§ 171.15(c)(3) and 171.16(f) of this final rule. For FY 1992, the amounts of the surcharges for the various fee categories using the FY 1993 method are shown in §§ 171.15(c)(4) and 171.16(g) of this final rule. The revised LLW surcharges for small generators of LLW are \$1,400 for FY 1991 and \$1,500 for FY 1992. The surcharge for FY 1991 is the same for small generators (\$1,400) as that assessed in FY 1991. For FY 1992, the LLW surcharge of \$1,500 is \$100 less than the \$1,600 paid by the small generators in FY 1992. The revised surcharges for large generators of LLW for FY 1991 and FY 1992 are \$62,300 and \$61,700, respectively. These surcharges are lower than the \$143,400 and \$155,100 paid in FY 1991 and FY 1992, respectively, by some large fuel facilities. Based on the FY 1993 LLW allocation method, the revised surcharges for FY 1991 and FY 1992 for operating power reactors and small fuel facilities (fee Category 1.A.(2)) are greater than those paid in FY 1991 and FY 1992. The increase will not be assessed because no additional charges established under this final rule (i.e., a later enacted rule) can be retroactively assessed due to applicable judicial precedent. However, refunds will be made for certain large generators because their fee burden is lower under the revised allocations. The amount of the refund for individual licensees will represent the difference between the amount paid under the previous rules and the revised amounts for FY 1991 and FY 1992. The NRC expects the refunds to the large generators to be made by June 30, 1994. For the approximately 1,000 small generators who paid a FY 1992 LLW surcharge, each will receive a \$100 credit on their FY 1994 bill for cost effectiveness reasons. The total amount of the refunds and credits for both fiscal years is estimated to be approximately \$2.2 million. If any entity no longer holds an NRC license, but is eligible for a refund or credit, it should write to the U.S. Nuclear Regulatory Commission, Office of the Controller, License Fee and Debt Collection Branch, Washington, DC 20555.

III. Administrative Procedure Act: Waiver

No additional charges will be assessed for FY 1991 and FY 1992; instead certain licensees are eligible to receive either refunds or credits based on the difference in the amount of the revised surcharges and the amounts initially paid in FY 1991 and FY 1992. To expedite the issuance of refunds and credits, the NRC has determined that good cause exists to waive the 30-day deferred effective date provisions of the Administrative Procedures Act (5 U.S.C. 553(d)(3)). This final rule will therefore become effective immediately upon publication.

IV. Environmental Impact: Categorical Exclusion

The NRC has determined that this final rule is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental assessment nor an environmental impact statement has been prepared for the final regulation.

V. Paperwork Reduction Act Statement

This final rule contains no information collection requirements and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

VI. Regulatory Analysis

With respect to 10 CFR Part 171, on November 5, 1990, the Congress passed Public Law No. 101-508, the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). OBRA-90, as amended, requires that for FYs 1991 through 1998 approximately 100 percent of the NRC's budget authority be recovered through the assessment of fees. To accomplish this statutory requirement for FY 1991 and FY 1992, the NRC on July 10, 1991 (56 FR 31472), and on July 23, 1992 (57 FR 32691), in accordance with § 171.13, published in the Federal Register schedules of the FY 1991 and FY 1992 annual fees for operating reactor licensees, fuel cycle licensees, materials licensees, holders of Certificates of Compliance, registrations of sealed source and devices and QA program approvals, and Government agencies.

In FY 1991 and FY 1992, the NRC allocated low-level waste (LLW) costs by the amount of waste disposed per class of licensee, dividing the costs equally within each class. This method of cost allocation was challenged in court.

On March 16, 1993, the U.S. Court of Appeals for the District of Columbia Circuit decided *Allied-Signal, Inc., v. U.S. Nuclear Regulatory Commission and the United States of America*, 988 F.2d 146 (DC Cir. 1993). The court

questioned the Commission's decision to allocate generic costs associated with low-level waste (LLW) disposal by classes of licensees, rather than by individual licensees. The Court remanded only the FY 1991 rule; however, the FY 1992 rule raised identical questions. The same petitioners who challenged the FY 1991 rule in court also brought a judicial challenge to the FY 1992 rule.

In response to the court decision, the NRC in its proposed FY 1993 annual fee rule published on April 23, 1993 (58 FR 21662), requested comments on four alternative methods of LLW cost allocation and possible variations of those alternatives. A number of comments were received. There was no consensus among the commenters regarding a preferred option.

In response to the Court's directive, the NRC, in its final fee rule for FY 1993, published on July 20, 1993 (58 FR 38669), changed its method of allocating LLW costs to NRC licensees. The NRC, for FY 1993, created two groups—large waste generators and small waste generators. Licensees within each group are charged a uniform flat fee. In the final FY 1993 rule, the NRC also adopted this approach for FY 1991 and FY 1992, indicating that it would separately publish a final rule revising the FY 1991 and FY 1992 surcharges resulting from the changed allocation of NRC LLW budgeted generic costs. This final rule establishes the revised surcharges for FY 1991 and FY 1992.

VII. Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this final rule as adopted does not have a significant economic impact on a substantial number of small entities. This final rule establishes revised surcharges for FY 1991 and FY 1992. These revised surcharges will not impose new financial burdens on any class of licensees for FY 1991 and FY 1992. Rather, certain licensees will be eligible for either refunds or credits based on the differences between the amount of the revised surcharges and the amounts initially paid in FY 1991 and FY 1992.

VIII. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and that a backfit analysis is not required for this final rule. The backfit analysis is not required because these amendments do not require the modification of or additions to systems, structures, components, or design of a facility or the design approval or manufacturing license for a facility or the procedures or organization required to design, construct or operate a facility.

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List of Subjects in 10 CFR Part 171

Annual charges, Byproduct material, Holders of certificates, registrations, and approvals, Intergovernmental relations, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the NRC hereby adopts the following amendments to 10 CFR Part 171.

61 FR 16203

Published 4/12/96

Effective 6/11/96

Revision of Fee Schedules; 100% Fee Recovery, FY 1996

See Part 170 Statements of Consideration

59 FR 36895

Published 7/20/94

Effective 8/19/94

Revision of Fee Schedules; 100% Fee Recovery, FY 1994

See Part 170 Statements of Consideration

60 FR 32218

Published 6/20/95

Effective 7/20/95

Revision of Fee Schedules; 100% Fee Recovery, FY 1995

See Part 170 Statements of Consideration

60 FR 33462

Published 6/28/95

10 CFR Part 171

Revision of Fee Schedules; 100% Fee Recovery, FY 1995

Correction

In rule document 95-14879 beginning on page 32218 in the issue of Tuesday, June 20, 1995, make the following corrections:

1. On page 32231, in Table IV, in the last column, "108 reactors= \$2,427,000 per reactor" which now appears as the text of footnote 3 should have appeared as the last entry in the table.

§ 171.16 [Corrected]

2. On page 32245, in the second column, in § 171.16(c), in the table, in the first column, the first five lines should read "Small businesses not engaged in manufacturing and small not-for-profit".